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THE ADMINISTRATION'S FIVE POINT HEALTH PROGRAM *

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On the 18th of January, the President sent to the Congress his recommendations in the field of health. These were five in number and were concerned with strengthening the research program of the Public Health Service, changes in the formula for grants-in-aid in the health field, further extension of the Federal-State Rehabilitation Program, and amendments to the Hospital Survey and Construction Act of 1946, to provide for construction of chronic disease units, nursing and convalescent homes, diagnostic or treatment centers, and rehabilitation facilities. He further recommended the establishment of a Federal reinsurance service to "encourage private and non-private health insurance organizations to offer broader health protection to more families." He also emphasized that "the best way for most people to provide themselves with the resources to purchase good medical care is to participate in voluntary health insurance plans." This recognition of the principle of voluntary prepayment of the cost of health care has been most gratifying to all of those who have labored for many years in this field.

The American Medical Association acting through its Board of Trustees approved in principle all but the reinsurance proposal, shortly following the President's message. They felt at that time and until a specific bill covering the subject of reinsurance was submitted to the Congress that any action approving or disapproving Federal reinsurance should be deferred.

Since bills now have been introduced into the Senate or the House of Representatives covering the several aspects of the President's proposals, brief comments will be made in reference to the most important of them and a more detailed analysis of the proposed reinsurance plan will be undertaken.

RESEARCH PROGRAM

The first of the President's recommendations concerned the strengthening of the Public Health Service's research program. While we have presented no specific objection to this recommendation, there should be an appraisal of the multiple research activities in the Federal government from the standpoint of economy and of preventing wasteful overlapping and duplication. The total cost of all of these projects should be known and their relative value in reference to the cost.

The second recommendation was in reference to the establishment of a Federal Reinsurance Service and will be discussed later.

HOSPITAL BUILDING PROGRAM

H. R. 8149 and S-2748 have to do with amendments to the Hospital Survey and Construction Act of 1947 and are intended to implement plans for treatment and diagnostic centers, chronic disease hospitals and nursing homes. A clear definition of what constitutes a treatment and diagnostic center should be a part of the bill. The provision in the original Hill-Burton Act whereby a state authority making a

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survey would determine priority of need, location, and type of facility necessary to develop a well rounded system in each state should be included in the present bill. We also believe, and have so advised the Congress that chronic disease and convalescent hospitals should be set up as part of or contiguous to existing hospitals. A chronic case may become acute and may require general hospital care not available in a chronic disease institution. Patients should be easily transferrable, back and forth, between the chronic division and the more active part of a conventional hospital.

REHABILITATION AND VOCATIONAL TRAINING

The fourth recommendation was for a substantial increase in the Federal-State program for rehabilitation and vocational training. Senate bill 2759 proposes to amend the present Vocational Rehabilitation Act to carry out the purpose of this recommendation. While we are in sympathy with the purpose of the act, we have taken no vigorous action for or against this bill.

EXTENSION OF PUBLIC HEALTH SERVICES

The purpose of the fifth recommendation as expressed in Senate Bill 2778 is to amend section 314 of the Public Health Service Act so as to extend and improve public health services and provide for better use of public health service funds. At present, specific grants are made for a list of diseases such as venereal disease, tuberculosis, cancer, heart disease, and mental disease, and for public health services generally. The bill proposes the elimination of these specific grants and the substitution of three types of grants. One of these is for general public health purposes. One is for extension and improvement of public health service, and the third for so-called "unique projects." In the last two categories there is no provision for consultation with state health authorities or with an advisory committee. While we approve the purpose of this bill, we see no reason for separation of grants one and two, and we feel that consultation with the state health authorities is an essential part of a well working program. We feel that the section dealing with "unique projects" should be clarified. The Surgeon-general is given complete authority in this field without benefit of consultation with either the state health agencies or a national advisory council. This bill provides that type 3 grants may be made to non-governmental and non-profit organizations and agencies. More specific definition should be given as to such non-governmental agencies. In view of the fact that the commission on intergovernmental relations was created by the 83rd Congress, it seems desirable to await a report of this commission before new legislation, not of an emergency nature, providing Federal grants-in-aids to the states be adopted.

REINSURANCE OF HEALTH INSURANCE PLANS

The Senate Bill 3114 and its companion bill in the House 6356, the so-called reinsurance bills have stimulated a great deal of interest and have provoked considerable controversy. These bills propose to establish a Federal Corporation with a capital stock of 25 million dollars for the purpose of reinsuring certain health insurance plans operated by a commercial or non-profit insurance carrier. The first section of the bill provides for a technical and advisory service in the insurance field. The Department of Health, Education and Welfare is authorized to collect data from all sources concerning morbidity and mortality rates and other significant factual information. This section also provides for a study of organizational procedures and structure, and the distribution of technical advice and information without charge to agencies engaged in providing insurance against the cost of health services. A separate appropriation would be set up for this activity.

The second section of the bill proposes to establish a Federal Reinsurance Corporation with a 25 million dollars operating capital. This corporation would undertake to insure, not companies, but particular plans acceptable to the Secretary, and at a fee fixed by the Secretary. This would probably be on the basis of a percentage

of gross premiums collected by the company. An allowance of one-eighth of the total gross premiums would be set up for overhead and operational expenses. Seventy-five percent of the losses, if any, incurred by a company under a particular contract would be covered by the corporation.

All responsibility for administration of the act lies in the Secretary of Health, Education, and Welfare. A National Advisory Council consisting of 12 members appointed by the Secretary and with the Chairman appointed by the Secretary is provided in the bill. The council is merely an advisory one. The Secretary is authorized to utilize such state agencies as are empowered by law to supervise insurance carriers. However, requirements and standards are prescribed by the Secretary. The Secretary, after reviewing any proposed plan will fix the reinsurance premium rate at a level necessary to secure the objective of the act. These premiums will be fixed separately for each plan. The renewals will be made on an annual basis. The premium rate will be subject to change on the basis of experience in a preceding year. The bill contains a "no competition" provision. It is not entirely clear as to just how this would be administered. It is stated, "that if in the Secretary's judgment, reinsurance by nongovernmental agencies for a plan is available on the terms and conditions, and at a premium rate comparable to those offered under the act and to an extent that would be adequate to promote the purpose of the act, such plans would not be insured by the Federal Reinsurance Corporation."

There are a number of other provisions concerning the legal status of the carrier, financial soundness, reports required, and certification by the state insurance departments. It is obvious that the Secretary has quite broad powers and has the authority to prescribe such regulations as may be deemed necessary to carry out the purpose of the act. This purpose is to extend prepayment insurance to the geographical areas not fully covered, to classes of individuals not now fully protected and to make the total over-all protections more extensive or more adequate.

The law further provides that the Secretary can prescribe the minimum benefit, limitation or exclusion because of preexisting conditions or specific illnesses, the maximum liability, waiting periods, duration, cancelability and renewability. There are numerous other provisions of this type that are within the authority of the Secretary to prescribe.

Before considering this program it might be well to first take a look at the present status of health insurance. Voluntary prepayment insurance against the cost of hospital care began in the middle thirties. Fifteen years ago, in 1939, six million people carried some form of insurance against this hazard. At the present time 92 to 93 million people carry such insurance. In the meantime, progress has been made in insuring against the cost of surgical and medical care in hospitals. At the present, approximately 75 million people carry insurance against the cost of surgical treatment in hospitals and 35 million against the cost of medical care. All of these programs have been and still are growing rapidly. It is recognized that these various policies vary considerably in their completeness of coverage, nevertheless, the insurance idea has spread to a large percentage of the insurable population. On the basis of those that are insurable, approximately 72 per cent of the population is covered. The percentage of coverage in different states varies widely. In the industrialized states and the industrial centers, the coverage runs from 80 to 84 per cent of the total population. In the more rural states the percentage is much lower and may be in the range of 45 to 50 per cent. This is largely due to greater difficulty of applying the group principle to the rural population, and of bringing educational methods to bear.

It must be recognized, however, that a considerable percentage of the people in

this country because of financial factors, age, unemployment, permanent or temporary disability of fairly long standing, are not insurable. Unemployment figures do not give a true picture of insurability since on the average 60 per cent of the unemployed are unemployed for four weeks or less, and approximately 57 per cent of them have unemployment insurance. The group over sixty-five years of age, numbers over 13 million, the temporarily disabled are over 4½ million, 60 per cent of whom are disabled for more than thirty days. The public assistance group approximates 5½ million, 47 per cent of whom are among the aged. There remains the low income group who so far have been either unwilling or unable to purchase prepayment protection. The experience of certain areas indicates that about half of this group are able to purchase insurance, but are unable to pay the cost of their illness at the time it occurs. The other half fall into the category of those whose income is so low that they cannot properly be expected to purchase prepayment protection.

The full significance of what has been accomplished already in the insurance field is not shown by a comparison of total hospital and medical costs with the percentage of coverage that now prevails. One of the principal effects of insurance has been a leveling process that takes off the peak of medical expense and fills in the valley by averaging the over-all costs. For example, the average cost for hospital care per person hospitalized is $148.00. If insurance only accomplished the leveling process so that every one paid this average figure, there would be relatively little hardship. But insurance does more by paying a substantial proportion of the bill.

In addition, very encouraging progress has been made in the sale of major medical expense insurance or so-called catastrophic illness insurance. These plans are comparatively young, but already more than a million such policies have been written. The extraordinary expansion of prepayment voluntary health insurance during the past fifteen years, particularly during the past two or three years, gives us reason to believe that further expansion in the number covered and the extent of coverage will continue. There are approximately eight hundred insurance agencies engaged in selling health insurance in a highly competitive field. Further extensions will continue as rapidly as sound actuarial experience is acquired, and as more and more people are induced to give the purchase of health insurance its proper place in their budget.

Through the medium of the Federal Reinsurance Corporation, the Department of Health, Education, and Welfare proposes to broaden health insurance coverage by reducing exclusions, making benefits more comprehensive, reaching into the areas of catastrophic illness, increasing the number of hospital days allowed, elimination of certain age restrictions, covering a portion of the now uninsurable and by including in insurance the cost of providing early diagnosis and treatment of chronic disease. These are all admirable objectives, but can they be accomplished under the principles of insurance? One can not insure against death since it is certain, but one can insure against the unpredictable factor of when death will occur or what will cause it. I could buy very cheaply at my age insurance against death or crippling from polio, but insurance against death or disability from a long list of the diseases common in my age group, such as cancer, heart trouble, diabetes, arteriosclerosis, and paralysis would be extremely expensive. Reinsurance will not make insurance any cheaper. In fact, while it makes it more dependable, it increases the cost, since the premium charge for reinsurance has to be added to the premium paid by the individual policyholder.

Under our present system there has been rapid progress in the direction of covering greater numbers, extending benefits and including a wider range of individuals who present a greater than aver-

age risk. This has come about through the general improvement in the health of our people, which is reflected in the accumulated actuarial data and by adoption of the principle of co-insurance and the deductable factor.

We have to recognize that there is a large group of medically uninsurable people. While this group is being whittled down and can be whittled down further, there is a hard core that remains. At the present, it is made up of a major fraction of the over 13 million aged, the totally disabled, and a portion of the temporarily disabled, the public assistance cases, a considerable number of the unemployed, and the indigent. The individuals in these groups are entitled to and should have access to good medical care. This care should be paid for by direct payment at the time that illness occurs. Those who are unable to pay for their own care are now being paid for by private philanthropy and by local and state governmental agencies. This is being well done in certain areas and poorly done in others. This factor, however, does not militate against the validity of this principle. It does mean that every possible effort should be made in every locality and in every state to improve this particular aspect of the medical care program. It is fallacious, however, to assume that any form of insurance can economically cover these groups. It can be done by compulsory national insurance so-called, but that method ceases to be insurance and becomes simply a Federal medical plan supported by taxed funds.

To attempt to insure the noninsurable group would be economically unsound and can only be accomplished by subsidy. Subsidized insurance would certainly impair and perhaps destroy voluntary insurance.

There are a number of grounds for a reasonable fear of the effect of the Federal government's entrance into the area of reinsurance of health insurance plans. I am sure that the proponents of this plan are sincere in their statements that there is no element of subsidy involved. I am not sure that they are wise enough or strong enough to keep it out. In fact, on a small scale, it is already in. The operating expenses of the Federal Reinsurance Corporation will come from general tax funds for a period of five years. It will be in competition with private and nonprofit agencies within this same field that pay their own operating costs. There is a larger danger, however, in that once the machinery is set up, there will be a popular demand for a subsidy, through this corporation, for insuring the low income group. Once this occurs, further progress upward on the economic scale of governmental subsidized insurance is a simple matter of lengthening the yardstick by which indigency is measured. The one check upon expansion of the plan is the provision that the Reinsurance Corporation will pay only 75 per cent of the losses of the plan. This will be a strong deterrent against plans being put forward that do not have a reasonably sound actuarial basis. If this deterrent works, the corporations will probably do little business and cease to be an important factor unless it moves into the field of subsidy.

The power granted the Secretary of Health, Education and Welfare, under this bill is rather extraordinary. An advisory committee and its chairman are appointed by the Secretary. It reports only to the Secretary and is responsible to the Secretary alone. The Secretary has the power to declare, when in his judgment, a private agency is performing a particular insurance function that will further the purposes of the bill. How this fits into the "no competition" statement in the bill is somewhat difficult to understand.

It has long been this nation's policy to leave to the states the supervision and control of insurance. Entrance of the Federal Government into this area may well be viewed with some misgivings. This is particularly true when subsidy becomes a part of the program, since an element of Federal control will surely follow Federal subsidy.

CONTROVERSIAL SURGICAL ISSUES IN THE MANAGEMENT OF PANCREATIC DISEASE *

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Despite the encouraging progress that has been made in recent years in the difficult and relatively new field of pancreatic surgery, diseases of the pancreas continue to be the subject of much discussion and controversy. The divergence of opinion among surgeons concerning the various therapeutic procedures that have been advocated may be partially ascribed to the fact that surgical lesions of the pancreas are relatively so uncommon that it is almost impossible for the individual surgeon to accumulate sufficient personal experience to enable him to formulate conclusive policies based on that experience. Another factor which contributes to this relative infrequency of surgical attack on the pancreas is the existence of a justifiable temerity about operations on the pancreas, even in the minds of surgeons. The operative attack on pancreatic lesions is attended by more danger in terms of morbidity and mortality than most conditions and is technically more difficult in its anatomic and physiologic aspects. The deeply situated retroperitoneal position of the pancreas behind the lesser peritoneal sac at the level of the first and second lumbar vertebrae renders it less accessible to surgical approach than most abdominal organs. Its proximity to large blood vessels and other vital structures increases the technical difficulty of surgical therapy.

The purpose of this discussion is to consider briefly some of the controversial surgical issues in the management of pancreatic disease.

CONGENITAL ANOMALIES

The congenital anomalies of surgical importance are annular pancreas, ectopic pancreas and congenital cysts.

Embryologically the annular portion of the pancreas originates from two segments of pancreatic tissue which extend around the second portion of the duodenum, one passing anteriorly and the other posteriorly, and results from incomplete migration of the ventral anlage of the gland. Thus the proximal duodenum may be completely surrounded by a ring of pancreatic tissue which produces varying degrees of obstruction. Complete duodenal atresia exists in rare instances.

Annular pancreas is a rare condition, and in most instances it produces no symptoms and requires no treatment. If duodenal obstruction occurs duodenojejunostomy is the safest method of relieving it. Division or partial resection of the annular portion of the gland is unwise because of the possibility of injury to the main pancreatic duct and the development of pancreatic fistula, and also because the anomaly may be associated with duodenal atresia.

Ectopic or aberrant pancreatic tissue may occur almost anywhere within the peritoneal cavity. This lesion is much more common than annular pancreas, and most frequently occurs in the wall of the stomach, proximal small bowel, or even in Meckel's diverticulum.

The clinical significance of aberrant pancreatic tissue is dependent upon the location and size of the mass, the appearance of pathologic changes, and confusion with more serious lesions.[1] These ectopic pancreatic masses may be affected by a wide variety of pathologic conditions including pancreatitis, cyst formation, hemorrhage, abscesses, neoplasms, and even hyperfunctioning islet cell adenomas.

The symptomatic or incidentally discovered aberrant pancreatic tissue should be excised. Usually local excision of the ectopic mass will suffice. If the lesion is situated in the vicinity of the pylorus or proximal duodenum the true nature of the tumor frequently is not appreciated and subtotal gastrectomy is done.

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PANCREATIC CYSTS

Pancreatic cysts may be treated by: (1) marsupialization or external drainage, (2) simple incision and drainage, (3) internal drainage, (4) excision, and (5) resection by distal pancreatectomy, or occasionally by pancreatoduodenectomy. The choice of an operative procedure will vary with the etiology and pathology of the cyst as well as with its size, location, duration and visceral relationships.

Congenital cysts and true retention cysts are lined with epithelium and usually are not densely adherent to surrounding viscera and large blood vessels, and in most instances can be safely excised. Neoplastic cysts such as cystadenoma and cystadenocarcinoma should be excised by partial or subtotal pancreatectomy. The majority of pancreatic cysts, however, are not true cysts but are pseudocysts or inflammatory cysts secondary to previous acute pancreatitis. The dense scarring and adherence of the cyst to adjacent viscera such as the stomach and transverse colon and such vital structures as the common bile duct, portal vein, hepatic artery and superior mesenteric vessels make excision technically impossible or extremely hazardous. Because of these difficulties and dangers it is generally agreed that most pseudocysts should be treated by external or internal drainage.

Marsupialization or external drainage involves incising the cyst wall, evacuating its contents and suturing the edges of the defect in the cyst wall up to the parietal peritoneum. The cystic cavity is then packed with gauze and over a period of weeks or months the walls of the cyst collapse and the cavity becomes obliterated. This method has the disadvantage that there is usually at least a temporary pancreatic fistula following external drainage, and in the occasional case the drainage continues indefinitely. However, if drainage persists, reoperation and excision of the fistulous tract is usually feasible.

Internal drainage involves anastomosing the cyst to a segment of the gastrointestinal tract, usually the jejunum. This method has certain obvious advantages. The chief objection to cystenterostomy is that intestinal contents may enter the cyst cavity and become entrapped there. Also there is the danger of mistakenly treating a cystadenocarcinoma in this manner.

Each method of treating pancreatic cysts is suitable under certain circumstances. There must be individualization in the choice of therapeutic procedures in dealing with these problems.

ISLET CELL ADENOMA

One of the most interesting surgical lesions of the pancreas is the hyperfunctioning islet cell adenoma. The surgeon tends to underestimate the difficulties which the internist faces in the diagnosis of hypoglycemia due to pancreatic adenoma; and the internist may fail to appreciate the magnitude of the technical problem frequently encountered by the surgeon responsible for the identification and extirpation of these tumors. Each tends to oversimplify the problem of the other. It is well to remember that the relationship of hypoglycemia to islet cell tumors is an inconstant one. It has been estimated that the incidence of islet cell adenoma is about 1 in 1000 autopsies, but clinical manifestations appear in only about 20 per cent of these.[2] Furthermore, diseases of the liver, adrenal, pituitary, and thyroid may occasionly result in hypoglycemia.

Surgical excision of the islet cell adenoma is the treatment of choice because it is a potentially fatal disease. Irreversible central nervous system damage may occur; and, of course, some patients die of hypoglycemic shock. Moreover, about 15 per cent of these adenomas are malignant.

Years ago Whipple[3] emphasized that a surgical search for an insulinoma is justifiable only when (1) the attacks of suspected hyperinsulinism occur during periods of fasting or after extreme exertion; (2) the blood sugar value during the attack or after 12 hours of fasting must be below 50 mg. per cent; and (3) the symptoms must be relieved promptly by the administration of glucose. If an ade-

noma is to be found in an acceptable percentage of laparotomies there must be strict adherence to these diagnostic criteria, and at the original operation the surgeon must carefully explore the entire pancreas and sites of localization of ectopic pancreatic tissue. These tumors may be very tiny; they are multiple in 10 per cent of the cases; and they are situated in aberrant pancreatic tissue in from 2 to 5 per cent of the cases.

The surgical results are reasonably satisfactory. About 400 cases of hypoglycemia due to pancreatic adenoma have been reported in the literature,[4] but only one-half of these were operated upon. In about 45 per cent of the patients explored, no tumor was found. In more than one-half of these cases in which the surgeon did not find the tumor but proceeded with a subtotal pancreatectomy, the resected specimen was histologically normal. Of those patients having subtotal pancreatectomy because of failure to find an adenoma about 40 per cent were cured. If an adenoma was removed almost 90 per cent of the patients were cured. The operative mortality in recent years has been less than 10 per cent.

CARCINOMA OF THE PANCREAS

Fortunately cancer of the pancreas is relatively uncommon. In 1935, Whipple demonstrated the feasibility of pancreatoduodenectomy in the treatment of carcinoma arising in the head of the pancreas, ampulla of Vater, duodenum, and distal common bile duct.

Because of its location and rapid growth, carcinoma of the body or tail of the pancreas is usually hopelessly inoperable before it produces symptoms of sufficient severity and specificity to result in laparotomy.

Until recent years the treatment of carcinoma of the head of the pancreas has consisted of palliative procedures designed to relieve complications of the disease and not for its cure. An anastomosis between the gallbladder or common duct and the jejunum will relieve jaundice resulting from common bile duct obstruction. If the duodenum is obstructed by the tumor a gastroenterostomy will sidetrack the point of obstruction.

More recently, in an effort to cure the disease, radical pancreatoduodenal resection has been performed in selected cases. This formidable procedure involves the en bloc removal of the distal half of the stomach, the distal common duct, the head and body of the pancreas, the entire duodenum and the proximal jejunum. Continuity of the gastrointestinal, biliary, and pancreatic tracts is restored by gastrojejunostomy, choledochojejunostomy and pancreatojejunostomy. The mortality following these resections has been so high and the cures so few that many surgeons feel that the justification for the radical operation has not yet been demonstrated, and that surgical treatment should perhaps be limited to short-circuiting operations. At the other extreme are a few surgeons who insist that radical total pancreatectomy should be done in all cases in which it is anatomically feasible. It seems to me that a reasonable plan would be to proceed with resection if the lesion is strictly confined to the head of the pancreas or immediately adjacent duodenum. Actually, the tumor may have originated in the ampulla of Vater, and approximately 25 per cent of such tumors are cured by resection. As far as I am concerned, extension of pancreatic tumor to regional lymph nodes, liver, portal vein, or superior mesenteric vessels means inoperability. While there is evidence to suggest that the patient who survives a palliative resection will live twice as long as the one who has had only the short-circuiting procedures, the immediate risk of palliative resection seems too great to justify its performance.

ACUTE PANCREATITIS

The controversy of operative or nonoperative treatment of acute pancreatitis has not been resolved, but most surgeons favor the conservative approach except in those cases in which the diagnosis is in reasonable doubt or when there exist signs of biliary tract obstruction, pancre-

atic abscess, pseudocyst or massive hemorrhage. While it is my feeling that acute pancreatitis can in most instances be best treated conservatively I know of some surgeons of wide experience and sound judgment who practice early operation in these cases with the idea that cholecystostomy or choledochostomy will decompress the biliary tract and improve the patient's chances for survival.

There is one variety of acute pancreatitis for which early operation is usually indicated. I refer to acute pancreatitis which has been initiated by blunt trauma to the abdominal wall. At Charity Hospital nonpenetrating or so-called subcutaneous injuries to the pancreas comprise 5 per cent of the cases of acute pancreatitis.[5]

Despite its deep and seemingly protected position in the abdomen the vascularity and fragility of the pancreas are such that even minor trauma may result in serious injury. A sudden epigastric blunt force may drive the pancreas against the bony spine and contuse, lacerate, or completely divide it. The following case report, previously recorded,[5] illustrates such an injury.

A man was seen two hours after an automobile accident in which the epigastrium had been struck by the steering-wheel. There were dyspnea, hematemesis, epigastric tenderness and rigidity, and signs of peripheral circulatory collapse. The preoperative diagnosis was ruptured spleen. The pancreas was completely divided at its neck, and there was brisk bleeding from the laceration. A liter of blood was present in the peritoneal cavity and in the lesser omental sac, and there were multiple hematomas in the walls of the stomach and transverse colon. This patient recovered after a stormy postoperative course complicated by fever, paralytic ileus and a copiously draining external pancreatic fistula.

This is one of 6 recognized cases of acute traumatic pancreatitis treated at Charity Hospital during the past decade.[5] In each instance the pancreatitis had been initiated by blunt trauma to the epigastrium. A prominent feature in one-half of the cases was a delayed appearance of severe symptoms. Major hemorrhage from the injured pancreas was found to have occurred in 4 of the 5 patients subjected to operation. Multiple, serious, associated injuries precluded laparotomy in 1 case. Significant complications included external pancreatic fistula in 2 cases, a pseudocyst in 1 case, and an abscess in or about the pancreas in 1 instance. The serum amylase was elevated in 3 of the 4 cases in which the test was performed.

Operation would be unnecessary in most cases of pancreatitis following nonpenetrating abdominal injury if serious injury to other organs and massive hemorrhage and disruption of major pancreatic ducts could be ruled out, but it is my opinion that such cases usually cannot be predicted with sufficient accuracy to justify a conservative nonoperative approach.

CHRONIC RELAPSING PANCREATITIS

Chronic relapsing pancreatitis is a very difficult problem about which there is much uncertainty and controversy. Unless cholelithiasis has been demonstrated or there is a strong suspicion of pancreatic carcinoma a determined effort should be made to control the symptoms by conservative measures. So often the disease is progressive and the symptoms become so severe and intractable that operation is required.

The wide variety of operations that are being used in the treatment of chronic relapsing pancreatitis not only indicates the diversity of the clinical and pathological manifestations of the disease but also reflects the inadequacy of these operations.

The selection of the proper operation for the individual patient may prove quite difficult both before and at the time of the operation.[1] In the first place, the cause of the disease is unknown. The most popular etiologic theory is the one which maintains that reflux of bile through a common pancreato-biliary channel is primarily responsible for the pancreatitis, and the most commonly employed operations for the condition are predicated upon this assumption.

The operative maneuver may be directed toward the pancreas or it may indirectly

affect that organ. The most commonly employed of the indirect methods are biliary tract operations, especially cholecystectomy and choledochostomy. There is general agreement concerning the importance of eliminating any pathologic condition of the biliary tract. The occasional patient will be permanently relieved by removal of a calculous gallbladder and prolonged T-tube drainage of the common duct. Other operations on the biliary tract have been used. Doubilet and Mulholand [6] who are strong advocates of the common channel theory of etiology, insist that division of the spastic sphincter of Oddi will overcome biliary obstruction and reflux of bile into the pancreas and relieve most of these patients. Bowers [7] recommends division of the distal common duct and its transplantation into the jejunum; and he reports 11 patients treated in this manner with uniformly good results.

Subtotal gastrectomy with vagotomy has been advocated by Richmond and Colp.[8] This operation diverts the acid gastric contents from the duodenum, and thus, not only diminishes pancreatic secretion but also reduces spasm of the sphincter of Oddi.

Removal of various segments of the autonomic nervous system in an effort to relieve pancreatic pain constitutes another indirect attack upon chronic relapsing pancreatitis. Pancreatic pain is probably transmitted through nerve fibers leading to the sympathetic chain and splanchnic nerves. Bilateral sympathectomy from T-11 through L-1 combined with splanchnicectomy is said to completely denervate the pancreas of all pain sensation. Vagotomy probably plays no role in relieving the patient of pain sensation, but it does diminish the external secretion of the pancreas.

The surgical maneuvers which constitute a direct attack upon the pancreatic lesions include drainage of cysts, opening of the duct of Wirsung with removal of calculi and resection of varying portions of the pancreas.

A simple pancreatolithotomy is occasionally feasible when a solitary calculus is obstructing the main duct of Wirsung. Usually stones are multiple and are scattered in small ducts making it impossible to completely remove them by transductal manipulation.

A few patients with chronic relapsing pancreatitis and pancreatolithiasis are best treated by distal pancreatectomy. This is true of the patients who after traumatic rupture of the pancreas with division of the duct of Wirsung have developed stricture of the duct with chronic obstruction distal to the injury. Distal pancreatectomy will also be applicable in the rare case of spontaneously recurring pancreatitis in which the pathologic process is confined to the body and tail of the gland.

Cattell and Warren [1] have pointed out that there is an occasional case in which there are multiple areas of intrapancreatic obstruction with marked fibrosis and multiple cystic areas in which it appears that no procedure short of possible pancreatectomy will offer a reasonable prospect of relief to the patient. They report having performed pancreatoduodenal resection in 11 patients with chronic relapsing pancreatitis without a fatality, and 10 of the 11 patients were relieved of their symptoms. Despite the great technical difficulties involved in resecting the duodenum and head of the pancreas under these circumstances, this risk must occasionally be assumed in the patient whose symptoms have become so intractable that invalidism, chronic alcoholism, and narcotic addiction have supervened and in whom relief can be obtained in no other way.

Total pancreatectomy has been performed in a few instances. This operation is accompanied by a high mortality rate and leaves the patient a physiologic cripple. Obviously it has a very limited application.

In their recent excellent monograph based on experience with over 1000 patients with surgical diseases of the pan-

creas at the Lahey Clinic, Cattell and Warren [1] sound the following warning relative to interpretation of results of operation for chronic pancreatitis:

"At the present time any appraisal of the surgical therapy of chronic relapsing pancreatitis must be approached with circumspection, and any conclusions arrived at must be regarded as tentative. This indecisiveness is inherent in our lack of precise knowledge regarding the etiology of the disease, and in the limited number of patients who have as yet been treated by any single surgical maneuver. The evaluation of results is further complicated by the high incidence of narcotic addiction among the victims and by the not infrequent observation that complete failure may follow what appeared to have been an excellent early postoperative result."

SUMMARY AND CONCLUSIONS

A discussion of some of the controversial surgical issues in the management of pancreatic disease has been presented. This is a relatively new field of surgery. Etiologic and therapeutic concepts are ever-changing, and many current ideas must be considered tentative opinions rather than established facts. Perhaps most surgeons would regard as reasonable the following suggestions:

1. Duodenal obstruction due to annular pancreas is best treated by duodenojejunostomy.

2. Symptomatic or incidentally discovered ectopic pancreatic tissue usually should be excised.

3. There should be individualization in the selection of therapeutic procedures in dealing with pancreatic cysts.

4. Hypoglycemia due to an islet cell adenoma is a potentially fatal disease. The offending adenoma should be excised. Only patients meeting rigid diagnostic criteria should be subjected to laparotomy. Subtotal pancreatectomy is justifiable if an adenoma is not found.

5. Carcinoma strictly confined to the head of the pancreas or immediately adjacent duodenum should be treated by pancreatoduodenectomy.

6. The treatment of choice in most cases of acute pancreatitis is conservative. Early operation should perhaps be restricted to those patients in whom the diagnosis is in doubt or to those with signs of suppuration, cystic accumulations, massive hemorrhage or biliary tract obstruction. Laparotomy seems indicated in most patients with acute pancreatitis initiated by blunt trauma to the abdominal wall.

7. Certain patients with chronic relapsing pancreatitis will require surgical treatment. At the present time an accurate appraisal of the various proposed operations seems impossible.

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BENIGN BREAST LESIONS

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At first glance, benign breast lesions would appear to offer no particular problem. Situated in an organ that lends itself readily to examination both by the patient and the physician, these lesions make themselves apparent at an early date. The intensive work done by the American Cancer Society in educating the public to look for the cardinal signs of cancer and to do self breast examination has further served to focus attention on these lesions. A lump

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in the breast, undue pain, or a discharge from the nipple usually brings the patient to the doctor. What then is the difficulty? Failure on the part of the physician to realize that no lesion, however well it might *appear* to satisfy the criteria of benignancy, can be other than suspect as long as the lesion remains in situ, and is not subjected to microscopic examination. Even gross removal of the lesion is valueless for it is unfortunate but true that we are unable to make an accurate diagnosis by gross examination alone. To add further to our difficulties, even relatively experienced pathologists differ in their interpretation of some lesions.

With this in mind, we have not thought it amiss to review some of the facts about the breast and benign lesions.

The breast is a modified sweat gland which is under the influence of many hormones, particularly those of the ovary. Estrogen is responsible for branching and proliferation of the duct system while progesterone, acting in combination with estrogen, but not by itself, serves to develop the lobules and alveoli. The liver probably inactivates estrogenic hormone.

The breast, being derived from skin, is subject to a variety of tumefactions which may appear anywhere in the body, as for example, lipoma, dermoid or epidermoid cyst. It is not our intention to discuss these other than to call attention to the fact that lipoma is an extremely uncommon lesion of the breast. Many of the so-called lipomas are in reality nothing but mammary fat, excised surgically, and with a dignified title provided by an obliging pathologist. Nor is it feasible in this brief period of time to discuss all of the benign pathology of the breast. We should like to confine our remarks to fibroadenomata, cystic disease, and discharging nipple.

FIBROADENOMATA

Fibroadenoma is the commonest benign breast tumor in young women of childbearing age. The diagnosis is usually made fairly readily from the following characteristics:

The tumor is encapsulated, freely movable, not adherent to the skin, and fairly firm. A history of rapid growth may be obtained during puberty, pregnancy, and the menopause. Fibroadenomata may be multiple, and occasionally bilateral. Figure 1 shows 7 fibroadenomata removed

Figure 1.

from the left breast of a 21 year old woman in the eighth month of pregnancy. Only 2 nodules had been palpable prior to surgery—1 in the lower inner quadrant of the breast and the other in the upper outer quadrant. A similar tumor mass had been removed from the other breast at an earlier date. A second patient, E. T., age 30, was admitted to Touro on April 19, 1950, for removal of 2 small masses which had been present in the right breast for two and a half years. There had never been any pain or tenderness or discharge from the nipple. The size of the masses was not affected by menses. There was no inflammatory reaction. Patient had had a full-term baby in August, 1949, eight months before admission, and pregnancy had had no effect on the size of the tumors. Patient presented two hard, well-defined masses 2 by 2.5 cm. in the right breast, one at 10 o'clock and one at 12 o'clock. A single soft node, 1.5 cm. in diameter, nontender and freely movable, was felt in the right axilla. Excision biopsy of the tumor at 12 o'clock was done, and grade 3 scirrhus carcinoma was discovered. Radical mastectomy was done, and 4 of 35 lymph nodes removed were found to be involved by the carcinoma. Patient was last seen on June 16, 1953, at which time chest x-ray was negative and

she was apparently free of recurrence. Multiplicity is no proof of benignancy or malignancy.

Prompt excision of apparently benign fibroadenomas is important for the following reasons:

(1) To verify the diagnosis; (2) to avoid a mutilating operation during a period of rapid growth, for example, as might occur during pregnancy or the menopause; and (3) to prevent the rare malignant change which may occur in the form of sarcoma or carcinoma.

A type of fibroadenoma which attains giant size at or near the menopause (also called giant intracanalicular myxoma or cystosarcoma phylloides) has been shown to have definite sarcomatous tendencies. Treatment here is simple mastectomy together with removal of the pectoral fascia. If microscopic sections show definite evidence of malignancy, radical mastectomy should be carried out, since in 4 per cent of the malignant cases, axillary lymph node involvement has been demonstrated. In a review of 77 cases, Treves and Sunderland (Cancer 1951:1286) have offered a new concept of this condition. They argue that the essential difference between fibroadenoma and cystosarcoma phyloides is not the size but the marked overgrowth of the stromal element in the latter; as evidenced by increased amount, increased cellularity, or both. The age of the benign cases varied from 15 to 72 years; of the malignant from 20 to 57. The size of the benign lesions varied from 1 to 15 cm; of the malignant from 3 to 29. The earliest indication of malignant change was anaplasia of the stroma situated near the epithelial structures. They stress the importance of multiple sections from representative areas before a cystosarcoma phylloides is diagnosed as benign. Recommended treatment is local excision of the uncomplicated benign cystosarcoma phylloides especially where there is total encapsulation of the lesion. In benign lesions involving the entire breast, simple mastectomy with removal of the fascia of the pectoralis major muscle should be done. Malignant cystosarcoma phylloides is treated by radical mastectomy.

CHRONIC CYSTIC MASTITIS

Chronic cystic mastitis, also called fibrocystic disease, mastopathy, mammary dysplasia or lobular dysplasia, covers a large group of conditions, neither inflammatory nor neoplastic, which appear to be influenced by endocrine secretions, especially the ovarian hormones. Chronic cystic mastitis is best divided into three subheadings:

1. Mastodynia or fibrous dysplasia
2. Adenosis or Schimmelbusch's disease
3. Cystic disease.

1. *Mastodynia.*—Mastodynia is an endocrine disorder of the well-developed breast in young women which is due to the imbalance between excessive estrogen and deficient corpus luteum secretion. Pain is the outstanding symptom, at first occurring only during the premenstrual period and progressing subsequently to encompass the entire cycle. The only physical findings in addition to tenderness are swollen, granular zones of increased density in the outer or upper hemispheres. Definite masses are not felt. The condition may persist for many years and eventually disappear, or it may progress to another stage of chronic cystic mastitis. In the occasional case, in order to establish a diagnosis, it may be necessary to do a surgical biopsy, but treatment primarily consists of reassurance of the patient against the fear of cancer, frequent examination and occasionally, endocrine therapy, especially progesterone, may be tried.

2. *Adenosis.*—Adenosis is characterized by multiple small nodules in one or both breasts, usually at the periphery, occurring primarily in childless women in their late 30's or early 40's, who have a history of irregular menstrual periods. The breasts are usually small, dense, with a saucer like rim. Pain and tenderness vary with the menstrual cycle. This condition, too, is thought to be due to overactivity of the estrogenic factor. Conservative therapy, with or without hormones is justified only if malignancy can be ruled out by

surgical biopsy of the larger and more discrete nodules. It must be admitted that this is not always satisfactory, since it may prove impractical to excise all the nodules; and since it is known that microscopic sections of different portions of the breast may show varying pathology. Another source of worry is the fact that in a carefully followed series of cases, 3 per cent of cases of adenosis ultimately developed cancer of the breast—about six times the expected incidence in normal women of this age group. Most of the nodular tissue tends to undergo involutional changes with the development of cysts. When borderline malignancy is diagnosed with a familial history of mammary cancer, simple mastectomy would appear to be the procedure of choice, since it has been shown that the daughter of a woman with breast cancer has about three times as much chance of developing breast cancer as a woman in the general population. At this time, it might be well to mention fibrosing adenomatosis—a variety of adenosis. Clinically, it may appear as a single or multiple hard nodules, and it is one of the conditions which in the past has often been mistaken for carcinoma even by experienced pathologists. Frozen section is often inadequate for diagnosis, and it is better to wait for paraffin sections than to do a needlessly radical operation.

3. *Cystic Disease.*—Cystic disease characterized by the rather abrupt appearance of one or more large cysts at or near menopause, appears to be due to the action of the estrogenic hormone unopposed by the luteal factor. In many cases, the cysts are multiple, and occasionally, bilateral. The patient may complain of a sticking or stinging sensation, and occasionally of nipple discharge. The breast and the cyst both transilluminate well. Aspiration biopsy has been recommended both for diagnosis and treatment, but we feel that excision biopsy is the procedure of choice because:

1. Aspiration can be done only for large thin-walled cysts superficially located.

2. It would still be possible to miss an associated malignancy.

3. Approximately one third of the aspirated cysts refill after aspiration and must be treated surgically.

DISCHARGING NIPPLE

Discharging nipple poses a real problem. The color of the discharge is of no help in providing a clue to the underlying pathology, but microscopic examination and chemical analysis with benzidene help. A discharge that contains lipoid material in the form of fat droplets and also desquamated epithelial cells can be accounted for on a secretory basis and may simply mean that the normally present keratin plug is out of the duct, or when occurring in an older woman with palpable distended ducts, may be an indication of early mammary duct ectasia. Mammary duct ectasia is a term coined by Haagensen for a syndrome which at different stages of development presents characteristics identical with the varicocele tumor of Bloodgood, the plasma cell mastitis of Adair, the comedo mastitis of Dockerty, and of fat necrosis. Mammary duct ectasia usually begins after the menopause, but occasionally in younger women, and may be bilateral. The earliest sign is nipple discharge which is apparently due to distention of the terminal collecting ducts beneath the nipple and areola with cellular debris and lipoid containing material. The debris within the ducts may be sufficiently irritating to cause a thickening of the duct walls by fibrosis which in turn may cause retraction of the nipple. If the intraductal debris breaks out into the periductal tissues and stroma of the breast, an intense inflammatory reaction with phagocytic giant cells, polys, and lymphocytes, like that occurring in fat necrosis, may ensue. Occasionally plasma cells predominate. Along with the inflammatory reaction in the breast, clinical signs which mimic carcinoma, a palpable, firm, poorly circumscribed tumor with retraction of the nipple and enlarged axillary lymph nodes may be found. This particular condition emphasizes the fact that it is never wise to do a radical mastectomy without surgical biopsy and microscopic examination of the specimen.

To return to the problem of nipple discharge, if a purely serous or bloody discharge is found, more serious breast pathology must be suspected. As Womack has stated, a serous discharge should be considered plasma and indicative of ulceration in the duct system. Serous and serosanguineous discharges are much more often due to benign lesions than to carcinoma. The usual offending lesion is a papilloma. If a palpable tumor accompanies the discharge, attention should be focused on the tumor, and biopsy done. Where the discharge is not accompanied by a palpable tumor, every effort should be made to determine the cause of the bleeding, since in at least a small percentage of cases a malignancy will be found. Occasionally, transillumination will furnish information as to location of a duct made opaque by its bloody contents. Sometimes leaving the patient alone for a short period of time will permit the involved duct to fill with blood and to present itself as a palpable tumor. At other times a probe may be introduced into a discharging duct at the nipple as suggested by Babcock and the lesion thus identified. Mammography has been discarded as too dangerous because of the danger of setting up a mastitis. At times, segmental pressure has given an indication of the quadrant involved and has been followed by quadrant resection of the breast. If carcinoma is demonstrated in the excised segment, or if the papilloma on histologic examination reveals malignant characteristics, radical mastectomy should be done. Where a single benign papilloma is found, and appears to be adequately excised, nothing further is done but the patient should be observed at frequent intervals because of the known tendency for the lesion to be multiple in 20 per cent of the cases. Where bleeding continues or recurs after local excision, or where bleeding appears to be coming from multiple quadrants of the breast, it would appear wiser to do a simple mastectomy, and if malignancy is found, follow it with a radical operation. Haagenson and Campbell in a review of cases found that no patient developed cancer after local excision of a papilloma, but Donnelly and Kilgore found cancer developing in from 10 to 20 per cent of patients who had had a papilloma excised locally from the same breast two to eight years before.

In conclusion, we should like to urge that every breast tumor be biopsied, that no radical surgery be done without adequate microscopic examination (paraffin section if the frozen section was not conclusive) and that particular attention be paid to the problem of nipple discharge with adequate and frequent long-term follow-up of those patients who have had local excision of a papilloma.

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PULMONARY INFARCTION *

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Early recognition of pulmonary infarction is particularly important to the chest physician. It is necessary to differentiate pulmonary disease from acute cardiac emergencies because early diagnosis is essential to effective therapy and prevention of further damage to the lungs. Wolff [1] has defined pulmonary embolism as a migration of gaseous or particulate matter from any portion of the cardiovascular system, peripheral to the pulmonary artery, and its lodgement in the pulmonary arterial tree. Pre-infarction of the lung occurs when pulmonary emboli produce atelectasis, edema, hemorrhage, and inflammation of the lung. These signs may become resolved, but when necrosis of the pulmonary parenchyma and pleura is followed by fibrosis, the term infarction is applied to the process.

Not all major emboli produce infarction [2] but in many instances of sudden death pulmonary edema is the only significant finding. Miller and Berry [2], in a review of 124 cases, found that occlusion of medium-sized vessels causes the greatest number of infarctions. Single or mul-

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tiple small emboli are frequently silent, but repeated episodes damage the pulmonary parenchyma and produce further distress to an already seriously ill patient. Pulmonary infarction may also be of thrombotic origin. Autochthonous thrombosis occurs in the pulmonary vascular bed in association with arteriosclerosis and extreme sluggishness of the pulmonary circulatory system.[3]

INCIDENCE

The increasing frequency of pulmonary embolism and infarction since World War I is generally recognized.[4] This may be explained by several factors, including better recognition of the phenomenon, greater prevalence of exhaustion and poor health during wartime periods, increased number of older patients now undergoing operation, and bolder operative procedures in patients who constitute poor surgical risks. Pulmonary infarction is probably more common in medical patients, and the diagnosis of hypostatic pneumonia and heart failure undoubtedly previously included many cases of pulmonary infarction. With increasing longevity, chronic illness will further augment the incidence of this accident unless vigorous preventive measures are employed.

Miller and Berry[2] found 124 cases of pulmonary infarction among 4,203 autopsies at the University of Michigan Hospital, between 1940 and 1950. About 60 per cent of these emboli originated in the lower extremities, about 25 per cent from mural thrombi in the right side of the heart, and the remaining 15 per cent from various other sites (Table 1). At Touro Infirmary in New Orleans, the diagnosis of pulmonary embolism was made in 117 cases among 140,050 admissions to the hospital between 1946 and 1953.[5]

The distribution of the pulmonary emboli in Miller and Berry's[2] series of 104 cases of infarction is shown in Table 2. Emboli from different sites of origin have been injected into experimental animals in an attempt to determine their predilection for certain pulmonary fields. Steinberg and Mundy[6], who injected lead shot into the jugular veins of animals, observed that a majority of the emboli lodged in the middle and lower lobes, with no preponderance in either lung. Smith and Abernathy[7] injected into rabbits at varying sites lycopodium spores and clumps of tubercle bacilli in serum as emboli. Emboli injected into the upper portions of the body lodged in the upper pulmonary lobes and those injected into the lower parts settled in the lower lobes. They attributed such a distribution to incomplete mixing of blood from the inferior and superior venae cavae, which produced a layering effect, but the site of origin of the emboli could not be determined from localization of the injury or infarction.

TABLE 1
ORIGIN OF EMBOLI IN 104 CASES OF INFARCTION

SITE OF ORIGIN	PER CENT
Lower extremities	61
Mural thrombi, right side of heart	24
Iliac vessels	9
Inferior venae cavae	3
Bladder and perivesical region	2
Hemorrhoids	1
Total	100

From Miller, R. and Berry, J. B.: Am. J. Med. Sc., 222:199, 1951.

TABLE 2
DISTRIBUTION OF PULMONARY EMBOLI IN 104 CASES OF INFARCTIONS

LOBES INVOLVED	NO. CASES
Right lower	27
Left lower	19
Right middle	11
Left upper	10
Right upper	6
Multiple	31
Total	104

From Miller, R. and Berry, J. B.: Am. J. Med. Sc. 222:199, 1951.

ETIOLOGY

Pulmonary infarction may result from all types of emboli originating in upper or lower extremities. Tomlin[8] reported 5 cases of thrombophlebitis of the upper extremities complicated by pulmonary infarction, which he attributed to chemical irritation and trauma to the veins. Clifford[9] reported a case of aneurysm of the

TABLE 3
CAUSES OF ACUTE COR PULMONALE

A. Great reduction in size of pulmonary vascular bed peripherally.
   1. Multiple small emboli in many arterioles, usually repeated episodes (from venous circulation, right auricle, right ventricle; amniotic fluid; direct tumor; fat emboli after fractures).
   2. Endolymphatic carcinomatosis of lung.
   3. Massive destructive pulmonary disease complicated by sudden further obliteration of pulmonary vascular bed (extirpative or collapse operation, spontaneous pneumothorax, massive atelectasis, extensive pneumonitis).

B. Obstruction of main pulmonary artery trunk or its major branches.
   1. Massive emboli.
   2. Thrombi.
   3. External compression by tumor.

C. Sudden development of left-to-right shunt, rupture of:
   1. Aortic aneurysm into:
      a. Pulmonary artery.
      b. Right ventricle or right auricle.
   2. Interventricular septum:
      a. Infarction.
      b. Ulceration with perforation in acute or subacute bacterial endocarditis.

Modified from Mack et al: Am. Heart J., 39:674, 1950.

trunk and left branch of the pulmonary artery in a young woman with recurrent pulmonary infections and embolizations. Emboli from amniotic fluid, with infarction of the lung, have also been reported [10, 11]. Other etiologic factors in pulmonary infarction and embolism are included among the causes of acute cor pulmonale (Table 3) summarized by Mack and co-workers. [12]

I have encountered 10 cases of pulmonary infarction among medical and surgical private patients during the period 1946 to 1953. Of these, 7 occurred in cardiac patients, 1 followed prostatic operation, and 2 were consequent to cerebrovascular accidents. It is of interest that the cardiac patients were receiving adequate anticoagulant therapy at the time of infarction of the lung.

PATHOLOGIC PHYSIOLOGY

Pathologic studies of pulmonary infarcts reveal them to be of two types. [3] A red or hemorrhagic infarct is noted when the collateral circulation from the bronchial arteries is adequate. It may be wedge-shaped and is usually situated near the surface, turning brownish-black from blood pigment. The pleura is frequently involved. The histologic picture varies from hemorrhage to organization, with some necrosis or ingrowth of granulation tissue. The second type, the anemic, pale infarct, results when the blood supply of emphysematous or fibrotic pulmonary tissue is interrupted. Dry necrosis will predominate, since collateral circulation from the bronchial arteries is not accomplished. This type of infarct is most likely to become secondarily infected. Small pleural effusions frequently accompany pulmonary infarction.

Myocardial ischemia of varying degrees, which occasionally occurs in association with pulmonary embolization, has been attributed by Mack and associates [12] to diminished coronary flood flow, decreased oxygenation of blood flowing through the lungs, and more oxygen required by the heart to meet the increased demands. It is their opinion that recent experiments do not confirm a pulmonocoronary reflex with vagal coronary vasoconstriction. A pulmonopulmonary reflex probably occurs, in which pulmonary emboli are accompanied by reflex vasoconstriction of other pulmonary arteries without intraluminal obstruction. Acute hypoxemia results from pulmonary arteriolar constriction and peripheral vascular collapse.

Pain produced by emboli, with and without infarction of the lung, may simulate coronary pain, since afferent nerves from the pulmonary artery enter the nervous system by the same pathway as those from the heart. [13] Nerve fibers in the pulmonary artery pass to the anterior and posterior pulmonary plexus and then, by way of the vagi and sympathetic route of the upper four dorsa, to the central nervous system; this is the identical path followed by nerves from the heart. There are many interconnecting fibers between the pulmonary and cardiac plexuses.

SYMPTOMATOLOGY

Signs and symptoms consequent to pulmonary infarction depend in large part upon the size and number of infarcts and the antecedent physiologic state of the heart, lungs, and circulatory system. Clinical symptoms of pulmonary infarction vary, but dyspnea, thoracic pain, and cough are common. Although less frequent, hemoptysis and syncope, when present, should alert the physician to the presence of an infarct. Dyspnea may be mild or severe, depending upon the presence and extent of the pulmonary embolism responsible for the infarction. Sudden episodes of coughing are often significant, but coexistence of cardiac disease and cardiac failure may be misleading. Probably the most common symptom of single or multiple pulmonary infarcts is thoracic pain, which may be deep-seated or pleuritic in type, accompanied by shallow respiration. Whereas anginal-like pain may be present, coexistence of organic cardiac disease and coronary involvement further complicates the diagnosis. Hemoptysis varies from pink-tinged sputum to frank blood.

Abnormal physical signs are important, especially in the absence of symptoms accompanying small single or multiple infarcts. Sudden episodes of septic fever, often low grade, persisting for several days to a week or longer should suggest this diagnosis. Shaking chills are rare, unless complicating sepsis is present. A sudden unexplained rise in pulse rate, with or without fever, should be noted with suspicion. Godfrey [14] has directed attention to the presence of thoracic tenderness with pulmonary infarction. Extreme tenderness of the thoracic wall, severe enough to cause the patient to cry out or flinch when moderate pressure is applied approximately over the site of the infarction, may be an early sign. It may appear as early as six hours after the onset of pleuritic pain and subside within forty-eight to seventy-two hours.

If the area of infarction is sufficiently large, physical signs, such as areas of impaired percussion, crepitant and subcrepitant rales and bronchial breathing, may be noted. A friction rub, audible in a minority of cases, may exist for only a short time. Pain localized in the arm or leg, although remote, should call attention to the possibility of a pulmonary infarct. Shock may be an initial symptom in massive pulmonary embolization with infarction, but the resulting cerebral anoxemia may be misleading by suggesting the brain rather than the lungs as the site of injury. [15] Faintness, syncope, and convulsions may ensue, simulating an acute cerebral vascular accident. Physical signs of acute cor pulmonale may be noted, with a prominent pulsation in the second and third intercostal spaces to the left of the sternum, accentuation of the pulmonic second sound, and cyanosis. Dilatation and pulsation of the jugular vein may also be observed. Disturbances in cardiac rhythm, which may develop suddenly, are not pathognomonic, being noted in organic cardiac disease as well.

LABORATORY FINDINGS

Laboratory data offer additional aid in the diagnosis of pulmonary infarction. Slight or moderate leukocytosis often develops shortly after occurrence of pulmonary infarction but is not a constant accompaniment of pulmonary embolism without infarction. An increased sedimentation rate appears early and may reach a high level within several hours. The icterus index is usually elevated, since hyperbilirubinemia occurs in about half the cases. [1]

Radiologic study is helpful when the typical triad of elevation of the diaphragm, pleurisy, and an infarct shadow is present. Short [16], in a review of radiologic examinations of 120 patients concluded that a wedge-shaped shadow is not to be expected in the majority of cases. The etiology of these cases is presented in Table 4. In one-half the cases in this series, the shadow of the infarct appeared in the right lower lobe and in one-third the cases in the left lower lobe. There were multiple emboli in 43 per cent of the

TABLE 4
RADIOLOGIC STUDY OF 120 PATIENTS WITH PULMONARY INFARCTION OR EMBOLISM

Etiology	No. cases	Infarction	Embolism without Infarction	X-ray examination
Cardiac	54	53	1	44
Postoperative	30	22	8	21
Obstetric	20	19	2	20
Other	16	12	5	9
Total	120	106	16	94

From Short, D. S.: Quart. J. Med. 20:233, 1951.

cases. Whereas the most characteristic appearance was a well defined area of consolidation, basal clouding, a costophrenic shadow, a linear shadow, and evidence of scarring were also noted. These shadows may not appear for several hours after infarction but are usually detectable within a period of twelve hours. Hanelin and associates [17] described 5 cases of thrombosis involving the main pulmonary artery or its branches, 4 of which were accompanied by pulmonary infarction. Roentgenographic findings included alteration in hilar contours, changes in the vascular pattern in the pulmonary fields, and occasional areas of increased radiolucency in the lung distal to the thrombus.

Serial roentgenographic studies reveal a rate of resolution varying from days to weeks, a definite scar rarely being visible after healing. Fifty-six per cent of the patients described by Short [16] had pleural involvement, and 33 per cent had pleural effusion, usually bloody. Elevation of the diaphragm on the side of the lesion, with restriction of its excursion, was a striking feature in 35 per cent of the 120 patients.

Among the factors responsible for negative roentgenograms are inadequate technic, which is common in portable films, examination too early or too late, presence of pulmonary congestion or hydrothorax, and an infarct shadow hidden behind the diaphragm or the heart. Reliance should therefore never be placed on a single film; re-examination should be carried out with the use of oblique and lateral views and, occasionally, fluoroscopy and tomography. Furthermore, serial studies will often demonstrate multiple areas of infarction previously unrecognized.

The electrocardiogram is of considerable diagnostic value in pulmonary embolization with infarction. However, it should be realized that the presence of pre-existing cardiac disease may also be reflected in the tracing. For example, the pattern of acute myocardial infarction may obliterate that of pulmonary embolism. When pulmonary embolism is suspected, an electrocardiogram should be obtained immediately and repeated daily or following each clinical episode. Electrocardiographic changes, when present, usually resemble those of acute cor pulmonale and result from myocardial ischemia, especially of the right ventricle and posterior wall of the left ventricle. [12] Depression of the ST segment, of the staircase variety, in leads I and II and in V_5, and V_6 is common, as are inversion of the T wave in the precordial leads, usually V_2 to V_4, and development of a Q_3 wave with T_3 inversion. In lead AVF, the Q wave may be small (vertical position) or absent (horizontal position). Right bundle branch block, complete or incomplete, temporary or permanent, may occur and has been ascribed to hypoxia of the right ventricle. Cardiac arrhythmia, a frequent manifestation, is considered to be neurogenic in origin or due to myocardial ischemia. The characteristic sudden appearance and abrupt evolution of these electrocardiographic changes, and their rather rapid return to normal, distinguishes them from examples of posterior myocardial infarction.

DIAGNOSIS

The diagnosis of pulmonary infarction depends upon the indexes of suspicion of the physician. It should always be considered when fever of unexplained origin, cough, thoracic pain, and leukocytosis suddenly develop in an elderly, bedridden medical or surgical patient. Careful examination of the limbs of such an individual will often reveal tenderness in the veins of the plantar region of the foot or

muscles of the calf, along the course of the veins of the thigh, or in the inguinal region, as well as enlarged lymph nodes. Occasionally, the extremities may be edematous, but phlebothrombosis may exist without evidence of inflammatory reaction, so that other sites of emboli must be sought. Clinical laboratory and roentgenographic examinations may offer some assistance, but unusual combinations of symptoms and signs often create confusion. Acute exacerbations, followed by relatively silent periods, should suggest the diagnosis to the clinician. Included in the differential diagnosis should be abdominal diseases, in which history and splinting of the upper abdominal region may be of diagnostic assistance, as well as such pulmonary states as mediastinal emphysema, spontaneous pneumothorax, bronchiectasis with areas of pneumonitis, lobal pneumonia, pulmonary abscess and postoperative pulmonary atelectasis.

Despite the fact that mastalgia in women is occasionally confusing, cardiac conditions are by far the most important to distinguish from pulmonary infarction. Typical angina and acute myocardial infarction may accompany pulmonary infarction but should be clearly differentiated, if possible. The history is important, since coronary thrombosis generally occurs in ambulatory patients or at night during sleep, whereas infarction of the lung is essentially a disease of the bedridden or convalescing. The onset of pulmonary infarction is usually sudden and is manifested by dyspnea, thoracic pain, syncope, and occasionally cyanosis. The pain is usually sharp and pleuritic in nature and may be accentuated by pressure on the thoracic wall over the infarcted area. Coronary thrombosis has a more gradual onset and is characterized by pressing or constricting pain, usually substernal in location with a typical radiation. Sharp lowering of blood pressure and paroxysmal tachycardia are early manifestations of pulmonary embolism with infarction. The onset of acute coronary thrombosis is usually more insidious, with lowering of blood pressure to the shock level, followed by a rapid thready pulse.

Electrocardiographic changes in pulmonary infarction are transitory, appearing suddenly and progressing rapidly. Reciprocal changes in the limb leads characteristic of coronary thrombosis are usually not observed. It should be reemphasized that the two conditions may occur simultaneously. I have had 2 patients in whom acute coronary thrombosis and pulmonary embolization with infarction were present at the onset. Table 5 illustrates the comparable clinical features, laboratory data and electrocardiographic findings in acute pulmonary embolization and in coronary occlusion with posterior wall infarction.[15]

TREATMENT

Treatment may be divided into two phases: (1) immediate emergency measures to combat acute pulmonary embolization with shock and respiratory difficulty, and (2) anticoagulants and venous ligation to prevent further pulmonary embolization and infarction of the lung.

Faxon and associates[18] found that the reflex spasm which occurs immediately after pulmonary embolization can be modified by stellate ganglion block and that relief of the spasm may diminish the infarcted area of the lung. In 3 patients in whom the procedure was carried out almost immediately, striking relief was observed. It appears, however, that after the first twelve hours, stellate ganglion block is useless, either because the spasm has subsided or because the effects of the occlusions have become firmly established. Papaverine, in intravenous doses of 1 or 2 gr., may be injected slowly to relax muscle, and large doses of atropine may be employed early to inhibit vagal impulses. The addition of oxygen, particularly when administered with a pressure mask, and the occasional use of blood or plasma to combat shock are also of assistance. Cardiac arrhythmias should be treated in the usual fashion in order to reduce the ventricular rate and restore normal rhythm, when possible. The use

TABLE 5
COMPARISON OF CLINICAL PICTURE

	Acute pulmonary embolization with pulmonary infarction	Coronary occlusion with posterior wall infarction
History	Convalescent (medical or surgical)	Angina on effort
Onset	Sudden, overwhelming	Gradual, hours or days
Pain	Severe, often pleuritic, no typical localization	Pressing or crushing; substernal to shoulder and arm
Dyspnea	May be sudden and intense; at times suffocating	Usually mild; when severe, mounts gradually
Cyanosis	May be pronounced; not relieved by O_2	Usually mild or absent
Shock	Often first symptom; may precede pain in ⅓ patients	When present, culminates several hours increasing pain
Syncope	May be initial symptom	Rare; may be terminal
Pulse	At onset, rapid and thready	At onset, normal or slow
B. P.	Usually low (part of shock)	At onset, normal or high
Fever	Early; may reach high levels	24-36 hours after onset; moderate
Leukocytosis	Early; high count	2nd-3rd day; moderate
Icterus index	Often increased (hepatic anoxemia?)	Not altered
X-ray	Pulmonary infarction? Dilated pulmonary artery?	Not characteristic; pulmonary congestion?
ECG	Early: atypical right bundle branch block	Early: RST up in II, III
	Later: large S_1, Q_3 and negative T_3	Later: Q_2Q_3 and negative T_2 and T_3

Modified from Roth, I. R.: Am. J. Med., 4:493, 1948.

of a binder to the thoracic wall will often reduce the quantity of opiates necessary to relieve pain. Extensive pleural effusions, which occasionally ensue, must be aspirated.

Prevention of further embolic phenomena and pulmonary infarcts depends in great part upon use of anticoagulant therapy and venous interruption. Baker and associates [19], who stated that neither of these has entirely eliminated this accident, have divided the therapeutic measures into two categories: (1) prophylaxis and (2) definitive treatment. Prophylaxis includes prevention of pulmonary embolism in a patient without demonstrable signs of intravascular thrombosis but who is considered a likely candidate, i. e., any patient over forty years of age in whom prolonged bed rest must be enforced following an operation or major injury or any chronically ill medical patient. In such cases anticoagulants should be used except in the presence of an open wound, contemplated second stage operation, or a coagulation defect. If anticoagulants are contraindicated, bilateral interruption of the common femoral vein, common iliac vein, or inferior vena cava should be accomplished. [20] Definitive treatment consists in measures to control pulmonary embolism and infarction in a patient who has already demonstrated evidence of intravascular thrombosis, such as thrombophlebitis, phlebothrombosis, or pulmonary embolism. These authors performed bilateral interruption of the femoral vein even if evidence for pulmonary embolism was only presumptive. Anticoagulants were employed for patients who had phlebitis without pulmonary embolism and for the group in whom pulmonary embolism was a possibility but not definitely established. Recent reports on anticoagulants reveal little difference in results with dicumarol, tromexan, or danilone [21, 22]. Wolff [1] outlined a general plan of treatment, which is presented in Table 6.

PROGNOSIS

The prognosis of pulmonary infarction depends upon the etiologic factor responsible for the infarction. The presence of large pulmonary emboli and acute cor pulmonale enhances the danger of death.

When small pulmonary infarcts are recognized early and measures are employed to prevent their recurrence, the prognosis is exceedingly good, and the patient may recover completely. Such patients have often received anticoagulant therapy over a period of months or years as a prophylactic measure against the danger of repeated episodes. Age of the patient and status of his cardiovascular and renal systems also apparently influence prognosis. Adequate treatment of any underlying primary disease is, of course, essential.

TABLE 6
INDICATIONS FOR ANTICOAGULANTS OR VENOUS LIGATION IN PULMONARY INFARCTION

A. *Anticoagulants*, for the following conditions:
   1. Predisposition to phlebitis (prophylactically), if operation not contemplated (acute myocardial infarction, severe congestive heart failure).
   2. Thrombophlebitis (therapeutically), if operation not contemplated (acute myocardial infarction, congestive heart failure, postoperative and obstetric patients in whom danger of hemorrhage is past).
   3. Phlebitis, including pulmonary embolism, when venous ligation is prohibitive risk.
   4. Pulmonary embolism, when seat of venous thrombosis is inaccessible surgically or when emboli from heart are suspected.
   5. Emboli which continue to occur despite venous ligation.
   6 Thromboembolism suspected but cannot be proved.

B. *Venous ligation*, for the following conditions:
   1. Prevention of pulmonary embolism in elderly patients prior to major operation.
   2. Phlebitis and/or pulmonary embolism, when operation contemplated.
   3. Phlebitis and/or pulmonary embolism when anticoagulants contraindicated.
   4. Pulmonary emboli which continue to occur despite apparent adequate anticoagulant therapy.

Modified from Wolff, L.: Circulation, 6:768, 1952.

SUMMARY

The chest physician, particularly, must strive for early recognition of pulmonary infarction and its differentiation from acute cardiac emergencies. These conditions often coexist, and proper treatment may be lifesaving. Better care of chronically ill, bedridden medical, surgical and obstetrical patients will reduce the incidence of thrombosis and embolic phenomena. The clinical picture and laboratory data have been reviewed in an attempt to clarify a condition which may complicate a seemingly benign primary disease. Serial roentgenographic and electrocardiographic studies are of considerable value when pulmonary infarction is suspected. Management consists in immediate emergency measures and specific therapy to prevent further infarcts. Long-term anticoagulant therapy may be necessary as a prophylactic and therapeutic measure.

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CANCER OF THE LUNG

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At the present time, there is tremendous interest on the part of the lay public and the profession in cancer of the lung, and it is well that there should be, because cancer of the lung is increasing more than any other cancer in the body. Although all cancers are increasing somewhat due to the fact that people are living longer now and are reaching the age at which cancer is likely to develop, the incidence of cancer of the lung has outstripped every other form of cancer.

INCREASING INCIDENCE

In the United States, between 1914 and 1950, cancer of the lung in women increased from 0.6 per 100,000 population, to 4.3 per 100,000 population, and in men the increase was from 0.7 per 100,000 population to 19. In Holland, as in many of the other European countries where autopsies are done on almost every individual who dies, lung cancer increased twenty-four fold in men and ten-fold in women from 1924 to 1951. It is frequently stated that there is actually no increase in the incidence of bronchogenic cancer, but that previously it was unrecognized and diagnosed as some other condition and that the increase at present is only apparent and not real. We are convinced that the increase in the incidence of cancer of the lung is real for two reasons: First, if cancer of the lung was missed previously, it must have been diagnosed as some other condition, presumably, tuberculosis. If this were true, there should be a decrease in the incidence of pulmonary tuberculosis in the older age group in which cancer of the lung occurs. Such is not the case; as a matter of fact, since 1933, the incidence of tuberculosis in men over 60 years of age has not decreased, but at the same time the incidence of cancer of the lung has materially increased. The very marked increase in the incidence of cancer generally in men is almost entirely due to the increase in cancer of the lung. Another reason why we believe cancer of the lung is actually increasing and is not merely relatively increasing is that in those countries where autopsies are done almost routinely the increase in the incidence of cancer of the lung has been proportionate to the increase in our own country where autopsies are relatively infrequent. It does not seem likely that pathologists would miss a cancer of the lung at autopsy.

In the United States, cancer of the lung in 1920 represented 1.1 per cent of all cancers; in 1930, 2.2 per cent of all cancers; and in 1948, 8.3 per cent of all cancers. We have predicted that in 1970 cancer of the lung will represent 18 per cent of all cancers or almost 1 in every 5. Since cancer of the lung is primarily a disease of men it might be predicted that in 1970, 1 of 2 or 3 men with cancer will have cancer of the lung. It has been estimated by the American Cancer Society that 1 in every 5 persons 40 years of age will develop cancer. Therefore, it may be computed that in 1970, unless something is done to prevent it, 1 of every 10 or 15 men living will have a cancer of the lung.

It is a well-known fact that past the age of 40 cancer generally increases with advancing age, there being a progressive increase in the incidence with each added year of life. This is true of all cancers except cancer of the lung, which increases markedly to reach a peak incidence at the present time at approximately 55 years of age, following which there is a decrease in incidence. This different behavior of cancer of the lung from other cancer has been present for some time. There has

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been, however, an alteration in the behavior of cancer of the lung in that the peak incidence fifteen years ago occurred at a later age, about 65, and the peak was not as high. In other words, the peak incidence of cancer of the lung is becoming higher and is being reached at an earlier age than previously. I believe the reason lung cancer does not behave as do other cancers is that the individual who has been a heavy smoker for many years has subjected his heart and blood vessels to the deleterious effects of tobacco and is likely to develop coronary thrombosis and die of this disease and not live long enough to develop cancer of the lung. A dubious advantage, therefore, of cigarette smoking is that one might prevent a cancer of the lung by developing coronary thrombosis relatively early and dying before the carcinogenic effect of cigarettes has a chance to exert itself. One might even suggest that deaths from both these conditions might be prevented by an individual shooting himself at the age of 40.

CIGARETTE SMOKE AS CAUSE OF INCREASE

Whereas there is some lack of unanimity of opinion concerning the cause for the unprecedented increase in the incidence of cancer of the lung, we are convinced from our observation that it is due to the carcinogenic effect of cigarette smoke. This assumption is based upon a number of facts. There is a distinct parallelism between the consumption of cigarettes in the United States and other countries of the world and the increase in incidence of cancer of the lung allowing for sufficient delay for the carcinogen to exert its effect. It has also been shown, without any question or doubt, that the smoke from cigarettes contains a cancer producing agent. One of the most conclusive evidences of this is research done by Graham and Wynder. In this particular investigation, they obtained the smoke from the cigarette in as nearly the same manner as a human being when he smokes. A robot machine smoking 24 cigarettes at a time so operates that every sixty seconds a drag of two seconds on the cigarette is maintained. The smoke obtained from the cigarettes is cooled and the tarred residue obtained in this way is applied to the skin surfaces of animals three times a week. At the end of eight months, one benign tumor developed at the site of the application. At the end of a year one cancer developed, and at the end of two years 44 per cent of the animals developed a cancer at the site of the application of the tarred residue which was identical with that seen in human beings. This malignant tumor metastasized, killed the animal, and was also transplantable. A criticism has been raised that one cannot compare animal cancer with human cancer. No attempt is being made to do so. However, it cannot be denied that cancer of the lung is increasing more rapidly and out of proportion to every other cancer and that there is a distinct parallelism between the consumption of cigarettes and the increased incidence of cancer of the lung. It has also been proved that there is a cancer-producing agent in the smoke obtained from cigarettes. It is, therefore, logical to assume that the unprecedented increase in the incidence of cancer of the lung is due to cigarette smoking.

RACE AND SEX

Cancer of the lung involves both the white and the colored races. In our series at the Charity Hospital, the incidence of bronchogenic cancer in the white race was 177 per 100,000 admissions as compared to 130 in non-white. It is primarily a disease of men; 90 per cent of our 1365 cases were in men. Whereas Graham is of the opinion that the condition will become as frequent in women as in men because women are beginning to smoke almost as much as men, we do not believe that this will ever be the case, because we believe that the mucous membrane of men is more susceptible to the carcinogenic effect of tobacco than that of women.

SITE OF INVOLVEMENT

Cancer involves both lungs with almost equal frequency; the right lung was in-

volved in 54 per cent of our cases and the left lung in 46 per cent. Of practical importance, however, is the fact that cancer of the lung is primarily a disease of the upper lobes. In our series, the right upper lobe was involved in 26.8 percent and the left upper lobe in 29 per cent. It is thus seen that in 55 per cent of our cases the lesions were in the upper lobes. This is of practical importance because the tumors are frequently in a position which is difficult to visualize bronchoscopically. Three types of tumor, epidermoid, undifferentiated, and adenocarcinoma, are found. In males epidermoid carcinomas are the most frequent, representing 54 per cent, undifferentiated carcinomas, 30 percent, and adenocarcinomas, 16. On the other hand, in females 20 per cent of the tumors were epidermoid, 28 per cent were undifferentiated, and 52 per cent were adenocarcinoma.

AGE

Bronchogenic cancer is a primary disease of advancing age. The greatest incidence in our series was in the sixth decade, 37 per cent, followed in frequency in the seventh decade, 31 per cent and the fifth decade, 18 per cent.

SYMPTOMS

Unfortunately, there are no classical manifestations of bronchogenic cancer. As a matter of fact, we are convinced that it is frequently present for a relatively long period of time without producing any symptoms. Because the bronchus is either incompletely or completely occluded, there is a likelihood of stasis within the portion of the lung distal to the bronchial neoplasm with the development of infection. It is for this reason that not infrequently the earliest manifestation of bronchogenic cancer is a lower respiratory tract infection which is diagnosed as influenza or viral penumonitis. In over half of our cases, a history of a previous respiratory tract infection was present. Cough is without a doubt the most frequent manifestation of bronchogenic cancer, but because most, if not all, heavy cigarette smokers cough, it is likely to be disregarded. Hemoptysis means ulceration of the respiratory tract and always demands investigation. Not all persons past 40 years of age with hemoptysis have a bronchogenic cancer, but in such an instance careful examination is obligatory either to confirm or to exclude the diagnosis. Thoracic discomfort is a manifestation which also must be investigated. Most of us are not aware of the fact that we have a chest. If a man past 40 who has been a heavy smoker becomes conscious of the fact that he has a chest, it may mean bronchogenic cancer. Wheezing, which always means bronchial obstruction, in an individual who previously had no evidence of asthma and who developed it past the age of 40, particularly if he is a man who had been a heavy smoker, must be carefully examined to exclude the diagnosis of bronchogenic cancer. The late manifestations of bronchogenic cancer are those of extensive disease and infection. These consist of fever, pain, digestive disturbances and emaciation. In our series of resected cases, cough was present in 88 per cent; weight loss in 67 per cent; chest pain in 62 per cent; hemoptysis in 53 per cent; a previous respiratory tract infection in 53 per cent; dyspnea in 49 per cent; weakness in 46 per cent; wheezing in 15 per cent; night sweats in 11 per cent, and voice change in 6 per cent. Involvement of the recurrent laryngeal or phrenic nerves is of importance because it has been accepted by many thoracic surgeons as an evidence of inoperability. Whereas involvement of either one or both of these nerves indicates extension beyond the lung to involve the nerve, it does not necessarily mean that the lesion cannot be resected or that the patient cannot be cured. For this reason, we have been unwilling to accept evidence of recurrent laryngeal or phrenic nerve paralysis as an indication of inoperability, but unless operability is precluded by some other evidence we believe the patient should be given the advantage of an exploratory thoracotomy.

DIAGNOSIS

The diagnosis of bronchogenic cancer is usually not difficult if one will only consider the possibility of its existence. Roentgenography is unquestionaly one of the most valuable methods of making a diagnosis, primarily because of the ease of obtaining a roentgenogram. Obviously, roentgen diagnosis is only presumptive and is never absolute. An x-ray is of value in detecting a bronchogenic neoplasm in a number of ways; in those lesions in which there has been considerable infiltration of the lung parenchyma, a shadow can be seen on the roentgenogram. If the tumor is small and incompletely occludes the bronchus, obstructive emphysema may develop. This is due to the fact that the bronchial tubes are not rigid tubes but move with respiration; during inspiration, they dilate and during expiration they contract. An incompletely obstructing tumor of the bronchus will permit air to get beyond the tumor during inspiration but during expiration, due to the contraction of the bronchus, a complete occlusion results and air is trapped distally. In those cases in which the tumor completely occludes the bronchus, absorption of the air distal to the site of obstruction and resulting atelectasis are of significance. Also in certain of the peripherally located lesions and in those in the upper lobes, bronchography obtained following the introduction of a contrast substance into the bronchi is of value in demonstrating obstructing lesions of the bronchus. In 82 per cent of our cases a correct diagnosis was made by roentgenographic findings.

Bronchoscopic examination is of importance in all individuals with suspected bronchogenic cancer, but unfortunately, a positive diagnosis can be made by this method of examination in only approximately one third of the cases. However, bronchoscopy should be done in most cases because not only is it of value in permitting visualization of those lesions which are within bronchoscopic vision and the obtaining of material for a biopsy when the tumor can be seen, but it also is of value in determining the possibility of inoperability. In those cases in which the carina or trachea is involved or in which there is a great deal of fixation of the bronchi, the case is probably inoperable.

The most valuable method of making a positive diagnosis of bronchogenic cancer, in our hands, has been cytologic examination of the sputum. It may be obtained either by expectoration or by material aspirated during bronchoscopy. In 68 per cent of our cases, it was possible to make a positive diagnosis of bronchogenic cancer in this way. Aspiration biopsy has been recommended by many; we believe, however, that it should not be used in a patient in whom a cure might be possible because of the danger of implanting tumor cells along the course of the aspirating needle. We use aspiration biopsy only in the obviously inoperable patient with a peripherally located lesion, in order to make a positive microscopic diagnosis. Although we have been able to make a positive preoperative diagnosis of bronchogenic cancer in 80 per cent of our cases, in 20 per cent the diagnosis could be made only by thoracic exploration.

TREATMENT

The only curative treatment of bronchogenic cancer at the present time is extirpation of the involved lung. Although it has been advocated by some that lobectomy may be used in the treatment of bronchogenic cancer and although certain patients with cancer of the bronchus can be cured by lobectomy, we are convinced that lobectomy is not a good cancer operation and should not be used except in the patient in whom careful preoperative pulmonary function studies indicate that the patient cannot tolerate a pneumonectomy. In doing a lobectomy it is not possible to remove en bloc all the mediastinal lymph nodes which is essential in the treatment of bronchogenic cancer. The treatment of bronchogenic cancer, therefore, consists, unless there is a contrain-

dication to it, of removal of the entire involved lung with an en bloc excision of the mediastinal nodes. In our series of 1365 cases, 619 (45 per cent) were considered hopelessly inoperable when first seen. Seven hundred forty-six were considered operable, of which 66 (9 per cent) refused surgery; 680 were explored of which 298 (35 per cent) were found to be nonresectable and 42 (18 per cent) of these died in the hospital. There were 442 in which a resection was accomplished, of which 84 (19 per cent) died in the hospital; 358 (81 per cent) were discharged from the hospital. The management in our 1365 cases may be summarized as follows: No operation was done in 51 per cent; 49 per cent were operated upon, and 33 per cent were resected.

There has been some difference of opinion as to the advisability of performing palliative resection for cancer of the lung. There probably is no abdominal surgeon who would hesitate to resect a malignant lesion of the colon in a patient who has metastasis to the liver, because even though the patient will die of his cancer because of distant metastasis, he can be made more comfortable for the remaining days of his life; actually his life will be prolonged, because his obstruction will be relieved. For some reason or other, this philosophy has not been accepted generally by thoracic surgeons, and the majority have been reluctant to perform palliative resection for bronchogenic cancer. Early in our experience, we decided that palliative resection for bronchogenic cancer is justified in order to make the remaining days of a patient's life more comfortable, to rid him of his suppurative disease, and to relieve his hemorrhage. Seventy-four per cent of our cases had palliative resections, the lesion had extended beyond the lung to involve other structures, the mediastinal lymph nodes, the mediastinum, pericardium, chest wall and/or the diaphragm. As will be subsequently demonstrated, not only have we made these patients more comfortable but we have also actually prolonged their lives and cured some of them.

The 84 deaths following resection for bronchogenic cancer may be divided as follows: Almost 46 per cent were cardiovascular deaths, and since the majority of these patients were in the sixth and seventh decades, it is obvious that this cause of death can never be eliminated; 32 per cent were respiratory; 15 per cent were due to hemorrhage, and 7 per cent were due to miscellaneous causes.

It is to be deplored that only 49 per cent of our cases were considered operable and only 33 per cent were resectable. This is understandable, however, when one realizes that the average delay from the onset of the first symptoms until definitive therapy was instituted was 8.7 months. Unfortunately, the delay was longer in the private cases than in the charity cases, 9.3 months in the former and 7.5 months in the latter. In an attempt to determine who was responsible for the delay, the patient or the physician, the following results were obtained: The patient was responsible for delay of an average of 2.8 months and the physician for 5.5 months. When this is broken down into the private and charity series, some incriminating evidence is obtained. In the charity series the patient was responsible for delay of three months and the physician 3.6 months; whereas in the private series the patient was responsible for delay of 2.6 months and the physician for a delay of 6.2 months. The longer delay in the private series we are sure is due to the fact that in the majority of patients a diagnosis of viral pneumonitis was made, and the patients who were able to afford private physicians were sent to a hospital and treated with antibiotics for weeks and months, with some degree of improvement to be sure because the secondary pneumonitis associated with the bronchogenic neoplasm was controlled; but unfortunately, there was a delay in suspecting bronchogenic cancer. It is to be deplored that so much emphasis was placed upon viral pneumonitis approximately

five years ago. Viral pneumonitis was correctly called an atypical pneumonitis, but unfortunately, the profession has come to think of viral pneumonitis and atypical pneumonitis as being synonymous; and, almost without exception, whenever an atypical pneumonitis is seen, a diagnosis of viral pneumonitis is made. Although we are sure that a man past 40 who has been a heavy smoker for a number of years can develop a viral pneumonitis, we are equally convinced that his chance of having a bronchogenic cancer causing his atypical pneumonitis is greater. Although we would not object to such an individual being treated for a period of a few weeks for his viral pneumonitis, one is obligated in such a case, unless there is complete subsidence of all manifestations within a very short period of time, to consider the possibility of bronchogenic carcinoma and to institute measures either to prove or to exclude such a diagnosis. It is only by suspecting bronchogenic carcinoma more frequently, particularly in individuals who have been heavy smokers, that an early diagnosis can be made, because a man at the age of 50 who has smoked heavily for twenty-five years has 50 times more chance of developing cancer of the lung than does a man of the same age who has never smoked.

SURVIVAL RATES

In spite of the fact that in this series of cases there was an average delay of 8.7 months from the onset of the first symptom until definitive therapy was instituted, the overall results in the resected cases were not too bad; 15 per cent of the resected patients are alive at the end of five years and apparently free from disease. Following resection there was a rapid falling off of the survival rate until the second year, following which a plateau was reached. Of all the patients having resections, 49 per cent were alive at the end of six months; 31 per cent at the end of the year; 18 per cent at the end of two years; 16 per cent at the end of three years, 16 per cent at the end of four years, and 15 per cent at the end of five years. As might be surmised there is considerable difference in those cases in which the operation was done as a palliative procedure and those in which the lesion was apparently confined to the lungs. The survival rates in the former group, (those in which there was extension beyond the lung at the time of resection) were as follows: 44 per cent were alive at the end of six months, 21 per cent at the end of a year, 10 per cent at the end of two years, 8 per cent at the end of three years, 7 per cent at the end of four years, and 6.8 per cent at the end of five years. In the group in which the lesion was apparently limited to the lung, 62 per cent were alive at the end of six months, 57 per cent at the end of a year, 39 per cent at the end of two years, 37 per cent at the end of three years, and 34 per cent at the end of five years. As mentioned previously, we adopted the philosophy of doing palliative resections in extensive bronchogenic cancer with the idea of making the patient more comfortable for the remaining days of his life, but not anticipating that a life expectancy would be increased. The fact that almost 7 per cent of those with extensive disease are alive and apparently well after five years demonstrates the validity of this contention even though we did not anticipate that the life expectancy would be increased. In all the cases in which a resection was not done, which obviously represents the more advanced group, some other type of palliative therapy was used, x-ray, nitrogen mustard, or a combination of both. The results here are not good. Only 17 per cent were alive at the end of six months, 5.7 per cent at the end of a year, 1.3 per cent at the end of two years, 0.3 per cent at the end of three years, and only 1 out of 500 cases is alive at the end of four years. It is thus seen that no other type of therapy, aside from resection, offers anything as regards cure.

In computing the survival rates in these series, we have assumed that all patients

dying have died of their disease. One must recall, however, that 15 per cent of the general population of this age group are dead at the end of five years and only 85 per cent are living, so that these results are actually better than they seem. To recapitulate, whereas 85 per cent of the population is alive at the end of five years, 6.8 per cent of those with extensive disease were alive at the end of five years, 15.2 per cent of all those subjected to resection, and 34 per cent in whom the lesion apparently was not extended beyond the lung. If we consider all of our cases, 6.6 per cent of the entire group are alive at the end of five years, whereas only 1 patient out of 500 in which resection was not done is living four years later.

The results at the present time in the treatment of bronchogenic cancer are not good, because an over-all salvage rate of only 6.6 per cent of the entire group is not good. However, the salvage rate of 34 per cent in cases in which the lesion was apparently limited to the lung is much better. It, therefore, is obvious that if better results are to be obtained in the treatment of bronchogenic cancer, it is necessary that the diagnosis must be made early. As mentioned previously, undoubtedly bronchogenic cancers are present for some time and can be diagnosed even before symptoms are present in all individuals, particularly men past 40 who have been heavy smokers. Such individuals who have unexplained thoracic discomfort must be suspected of having bronchogenic cancer until proven otherwise and measures must be instituted either to exclude or to prove such a diagnosis. It is because of the delay of over eight months that the results of the treatment of bronchogenic cancer today are not as good as they should be.

In order to detect an asymptomatic bronchogenic cancer, it is imperative that all men past 40 who have been heavy smokers have a chest film at least every six months, preferably every three months so that when they do develop bronchogenic cancer, it can be detected at a time when it is symptomless and can be cured.

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ANTONIO SCARPA *

ANATOMIST AND SURGEON

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NEW ORLEANS

As the result of a long standing traditional sentiment and religious prejudice that dated back to the third century B. C., the practice of human dissection, as we know it today, did not start until sometime during the thirteenth century. The first undisturbed dissection of a human cadaver is believed to have been made at a medical school in the small city of Salerno in Southern Italy, which is said to have been the earliest university in Europe. From this modest beginning, dissection of the human cadaver spread to other medical schools, which by now were becoming numerous, especially in other Italian cities. Credit for this pioneer work in anatomy, therefore, the most important of all the medical sciences, goes to the Italian scientists, who from the revival of learning during the *risorgimento* showed no signs of a letdown until possibly about the middle of the nineteenth century.

Among the many heroes during this developmental period of medical education we find Antonio Scarpa, who born into a very poor family of tradespeople, nevertheless, took advantage of his opportunities to become one of the most celebrated, if not the most outstanding, anatomist and surgeon of his time. Scarpa was born on May 19, 1752 "at Lorenzaga in the commune of Motta di Livenza." He was the son of Giuseppe Scarpa who was of Venetian origin. Almost from the very beginning he came under the influence of an uncle, Don Paolo, who was a priest,

* Presented by invitation before the Tulane History of Medicine Society on December 4, 1953.

and who undertook his early education. His eagerness to learn enabled him to acquire an excellent preparation for college. Young Scarpa acquired an excellent knowledge of the classical languages, and actually became an expert in the use of Latin. He was extremely well grounded in mathematics, and attained an unusually excellent knowledge of literature and the arts. Through all the days of his early education he showed a particular inclination to study medicine. Accordingly, his uncle sent him to the University of Padua where, at the age of fifteen years he passed the entrance examinations in an incredibly easy and brilliant fashion.

During his student days he let no opportunity to increase his general knowledge escape his attention. Scarpa was especially fascinated by and seemingly magnetically attracted to all of the sciences, particularly those relating to the study of medicine. He spent considerable time in the study of botany and zoology, both of which were to serve him well later. While engaged in his studies on human anatomy he attracted the attention of Giovanni Battista Morgagni. The latter was so impressed by Scarpa that he made him his personal secretary, a position which afforded him an unusual opportunity to further his knowledge and to learn about as well as to meet many of the medical notables in the Europe of that day. His contact with the celebrated Morgagni imbued him with a greater desire to further his knowledge in anatomy. Although very old, almost blind and rather feeble, and actually feeling ill, Morgagni requested the privilege of personally presenting Scarpa's diploma when he graduated at the age of nineteen years.

Even during his student days Scarpa was already attracting the attention of other scientists not only in Padua but in other centers of education as well, and especially at the University of Bologna. In 1772, at the age of twenty, because of his important work on the structure of the internal ear and, too, because of a previous recommendation by Morgagni, Scarpa was offered the chair of anatomy at the University of Modena which he accepted. His investigations here, especially on the structure of ganglia and nerve plexuses, the results of which he published in 1779, continued to attract the attention of the scientific world. A short time after going to Modena he was made chief surgeon of the Military Hospital there. While at Modena, Scarpa, in spite of his responsibilities and a full schedule, still found time to help Michele Rosa in his experiments on the transfusion of blood.

In 1780, Duke Ercole III of Modena sent him on a mission to study the methods of teaching used in the French and English Schools. His Paris stay permitted him to renew the acquantances of the anatomist Vicq d'Azyr. He was permitted to work in the Charity hospital where he was able to devote much of his time to researches on the nasal nerves. He also assisted the best known French surgeons in their work and, especially Wenzel with his operation for the removal of cataracts. An opportunity to study an interesting case of aneurism on a cadaver resulted in important observations which he presented to the "Societé de Medicine."

In the autumn of 1781, Scarpa went to London where he worked with the celebrated Percival Pott and William and John Hunter. It was while working with William Hunter that Scarpa got the idea of establishing a real anatomical museum for teaching purposes. From John Hunter he learned the importance of extending his field of research to the dissection of animals. This experience gave him the impression that he could increase his knowledge of human anatomy by the study of comparative anatomy. Cruikshank, an assistant of William Hunter, and Shelton taught Scarpa the technic of injecting mercury. This he used in injecting lymphatic vessels, and he succeeded in obtaining some very fine preparations.

After an absence of two years he returned to resume his lectures at Modena. Shortly thereafter he received the offer of

the chair of anatomy and clinical and operative surgery at the University of Pavia which included a very substantial increase in salary. Accepting this offer in the fall of 1783, he started a relationship with the Medical School of the University of Pavia that was to last until he died. In 1784, he and Allessandro Volta, the renowned physicist, were sent on a lecture tour to the universities in Bohemia, Saxony, Prussia, Hanover, Brunswick, Bavaria, and the Tyrol, by the Emperor Joseph II who ordered that all their expenses be paid. Upon his return to Italy he determined that the School of Anatomy at the University of Pavia should be the finest in all Europe. On October 31, 1785, a new anatomical amphitheater was opened. An abundance of cadavers was made possible through an order from the Emperor. This gave access to material for numerous investigations and researches not only by the teachers themselves but by the students as well. Through the munificence of the Prince, and at Scarpa's suggestion, the students were permitted the use of the necessary instruments, materials for injections, microscopes and many other apparatuses, all of which helped to make the Medical School of Pavia the most outstanding during this time.

According to Monti, "the importance of Scarpa's contributions to anatomy, as related to the general progress of this science, can only be evaluated by the anatomists themselves." He played a very great part "in defining uncertain notions, in resolving controversies," and "in assuring us of an exact and clear documentation of obscure discoveries." Scarpa's "discoveries in the organ of hearing were truly fundamental not only from the point of view of the anatomy but also from that of physiology, comparative biology, and pathology as well." Scarpa used excellently made wax preparations to demonstrate anatomical structures."

In his dissections of the external, middle, and internal ear, Scarpa discovered structures which had never before been known. Dissection of analagous structures in the lower animal gave him a more vivid understanding of these structures. It was Scarpa who was the first to describe the secondary tympanic membrane and show its attachment to a slight prominence now known as the "spine of Scarpa." It was he who explained the transmission of sounds from the ear drum, through the ossicles of the middle ear, and then through the secondary tympanic membrane covering the fenestra rotunda of the osseous labyrinth, thus permitting communication of the ear drum with the scala tympanica of the cochlea.

Perhaps Scarpa's most brilliant anatomical discovery was that of the membranous labyrinth contained in the innermost recesses of the internal ear. It was this discovery which opened the door for the studies of Corti. The description given by Scarpa of the various structures making up the membranous labyrinth have given us a much more clear understanding of the sense of hearing. Scarpa was the first to demonstrate that the acoustic nerve divides into two distinct branches — the cochlea and vestibular nerves. He also described the ganglion of the "vestibular nerve of Scarpa" from which there come four branches that go to the utricle and the semicircular canals.

"Of classical and fundamental importance, too, were Scarpa's observations on the organ of smell." He was the first to describe the roots of the olfactory nerve from the brain, and the three grooves comprising the olfactory area. These he showed in an excellent fashion by demonstrating the olfactory bulb in a series of vertebrates starting with the fishes. He described the olfactory nerve branches passing through the little openings in the ethmoid bone to their distribution in the nasal mucosa. Scarpa was the first to discover the nasopalatine nerve (of Scarpa) and "the two little openings in the anterior part of the hard palate" through which the nasopalatine nerves pass and which are known as the foramina of Scarpa.

Scarpa paid considerable attention to

the ganglia of the central nervous system. He was able to demonstrate that the sensory nerves pass through the posterior roots and the motor nerves through the anterior roots. The great influence of Scarpa is again seen in our knowledge of the sympathetic nervous system. He was the first to demonstrate the plexus which is formed on the external carotid artery, and its branches, from the nerve filaments that leave the superior cervical ganglion. He was also the first to observe the sympathetic nerves that pass from the cervical nerve ganglia to the heart.

Morgagni "in his fundamental work on the seat and causes of diseases, also directed his attention to diseases of the eyes." This can be said to have been the beginning of the study of eye diseases on a more scientific basis. Certainly, Morgagni by his contribution "established an anatomical basis for the new science of ophthalmology." Although several surgeons in various countries were working along more scientific lines in their investigations on diseases of the eye, it was not until Scarpa wrote his book on this subject, in which he included his previous experiences and observations with Morgagni, as well as those of foreign writers, that ophthalmology was elevated to a more scientific level. This book immediately achieved a huge success. "It was translated into French, English and German, and became the classical text adopted by all the best known schools." This book opened new avenues that have resulted in great strides in ophthalmology. Some of the observations made by Scarpa in connection with his studies of eye diseases "have remained indissolubly bound to his name." Both "staphyloma of the cornea" and "posterior staphyloma of the sclera" were first described in his book by Scarpa. The book "had five editions in Italy, four in France, two in England and Germany and one in Holland."

To Scarpa belongs the credit for establishing the anatomic-pathologic basis in the practice of surgery. His investigations on congenital clubfoot culminated in his construction of an elastic apparatus which is capable of gradually straightening the foot. This apparatus in modified forms is not only in use today but its successful use was the signal for devising other apparatuses in the treatment of other infantile deformities. Scarpa's monograph on aneurisms, "based upon the comparative analysis of normal and pathological tissues" showed for the first time that an aneurism "is not a simple dilatation of an artery, but the result of a profound alteration in the vascular tunics." This contribution was the beginning of a scientific movement to study the diseases of the arteries. The concept of the collateral circulation, which was developed with so much brilliance through well arranged experiments by Porta, and the general pathology of which was explained by Cohnheim, "to whom less informed sources give credit for the discovery," belongs essentially to Scarpa, who was the first to make numerous observations on the cadaver and to run various experiments on animals.

Scarpa's extensive dissections of the inguinal and perineal regions, to get a better understanding of hernias in these areas, stimulated him to write a book on hernias. These dissections later served as the basis for the investigations of Bassini and Burci. His book on hernias "became very well-known immediately," and was "translated into many languages." It also brought him a prize of four thousand lire from Napoleon. Scarpa's studies on the regeneration of bone in fractures, the nature of exostoses, and the process of bone absorption attracted considerable attention among physiologists. Finally, no medical student today would dare ignore the boundaries or the contents of the "triangle of Scarpa."

This briefly presented sketch of Scarpa's contributions outlines the main problems in which this great investigator and indefatigable worker was interested. It tends to show the many fields in which he made important contributions. However, they do not by any means represent

all of his scientific medical and surgical interests. Among his many contributions to surgical pathology are his observations and experiences in the treatment of cancer. He asserted that "cancer begins as a local disease," and that the "opportune moment for operation" is when "the tumor is early and limited."

The time during which Scarpa was active in the affairs of the University of Pavia may well be designated as its "golden era." In addition to Scarpa, whose international reputation brought many students from many foreign countries, there were a number of other notables in the faculties of the various schools, including Alesandro Volta the physicist and Lazzaro Spallanzani the biologist.

Scarpa gave up teaching in 1813 after the death of Giuseppe Jacopi a favorite student whom he had chosen to be his scientific heir. However, he continued to retain the office of Director of the Medical Faculty until his death from "calculus nephritis" on October 31, 1832.

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THE PROBLEM OF MEDICAL LICENSURE IN RELATION TO GRADUATES OF FOREIGN MEDICAL SCHOOLS

The problem of medical licensure in relation to graduates of foreign medical schools has become one of acute concern in this country in recent years. The proper resolution of this problem bears on the fundamentals of human relationship and upon the responsibility of medicine to the public. Quoting Rappleye, "The purpose of medical licensure, like that of medical education, is to assure the public that those authorized to practice medicine are competent by establishing standards of education, evaluating the qualifications of candidates, and conducting examinations to test the knowledge and fitness of candidates. This public responsibility has been recognized in one form or another since the early beginnings of history. The appraisal of physicians to discharge their obligations to patients and the community has been accepted for centuries."

In the first decade of this century there was a struggle in this country on the part of the universities, the State governments, and the profession, to establish adequate levels of medical education, licensure, and practice. In a cooperative effort in which the American Medical Association, the State societies, the Association of American Medical Colleges, and the Federation of State Boards of Medical Examiners of the United States all participated, a remarkable degree of improvement was attained in the general level of training and qualifications for practice. It has been correctly stated that the evaluation of professional conduct, and hence, of personal qualifications of a physician, is an essential feature of the maintenance of high levels of medical practice.

The public feels that professional education shall have determined as far as possible the character, integrity, industry, resourcefulness, reliability, motivation, and personality of the person applying for medical licensure, as well as having provided an adequate intellectual preparation.

With these aims before us, and with some goals partially attained, we are now facing the establishment of double standards in practice brought about by the influx of large numbers of graduates of medical schools of foreign countries. These graduates have not been provided with the pattern of medical education regarded in this country as necessary. Varying conditions in medical schools scattered over the earth have resulted in a situation in which many of their graduates are inadequately trained. This has resulted from a lack of adequate secondary education, from a scarcity of laboratories, teaching personnel, and clinical instruc-

tion. Many of these graduates have appeared in this country as immigrants, displaced persons, foreign "students," seeking postgraduate training, and in some instances, American citizens who have sought medical training abroad. It appears from reports compiled from many sources appearing in the Bulletin of the Federation of State Medical Boards of the United States, in recent years, that it is impossible to evaluate the training and suitability of graduates of foreign medical schools on the basis of their credentials. Similar conclusions were expressed by Fishbein, who reported on a survey in Latin America in 1948. He stated that at the time of the survey two schools in Latin America were comparable in educational standards to those required in this country.

In spite of these deficiencies, it has been stated that one in four of all interns and residents in the hospitals of this country at the present time is an alien and the graduate of a foreign medical school. The majority of these will seek to remain in the country and secure a license to practice. Approximately one half of the States are allowing such applicants to take their examination. It is stated that the experience in the State of New York shows the extent of their deficiency. This can be judged by the fact that 60 to 80 per cent of the foreign applicants fail the examination, some as many as fourteen times. It is obvious that if such inadequately trained physicians are allowed to practice the general quality of medical service will deteriorate.

Another faucet of the problem of licensure of foreign graduates is presented in the case of those individuals who seek postgraduate training in the form of an internship or residency, and who ultimately intend to return to their country of origin. The duties of an intern and of a hospital resident are those of a physician practicing medicine, even though under supervision. Accordingly, it is unwise to allow hospital patients to be treated by physicians whose formal training does not give adequate promise that they are properly qualified.

In Louisiana, this matter in its several aspects has been presented to the House of Delegates of the Louisiana State Medical Society in 1946 and in 1954. It has been considered by the State Board of Medical Examiners of Louisiana over a number of years. The decision reached by both bodies is in accordance with the views expressed above, and is to the effect that under the Medical Practice Act of the State of Louisiana foreign graduates are not permitted to take the examinations. The obligation of the Louisiana State Medical Society, and of the licensing board is to the citizens of the State.

The alternative plan suggested in certain quarters of issuing limited licenses does not clarify the situation, but on the contrary, further complicates it. The establishment and maintenance of adequate standards of training before licensure has been accomplished with difficulty over a period of fifty years. Under lowered standards, the individual with limited license is not one who would confine himself to a limited practice. Also, if a foreign medical graduate were given a limited license, any individuals in the ancillary phases of medicine—such as psychologists, physiotherapists, laboratory technicians—would properly seek a similar privilege in practice.

In summary, it may be stated accordingly that while the problem of licensing the graduates of foreign medical schools is not of our own making, it is with us nevertheless. Except in most unusual instances, these graduates are improperly trained and should not receive a license to practice. State Boards who are upholding the standards of practice are to be commended. This is particularly true so far as the physicians of Louisiana are concerned in regard to the Louisiana State Board of Medical Examiners.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

ABSTRACTED MINUTES HOUSE OF DELEGATES

May 20-22, 1954

Minutes of the 1953 meeting of *House of Delegates* approved as recorded.

Minutes of meetings of *Executive Committee since 1953 meeting* of House of Delegates approved as recorded.

Special Order

Appointment of Committees: *Credentials*:—Dr. C. E. Boyd, Shreveport, Chairman; Dr. Richard L. Buck, New Orleans, Dr. J. Morgan Lyons, New Orleans. *President's Report*:—Dr. J. Kelly Stone, New Orleans, Chairman; Dr. E. H. Lawson, New Orleans, Dr. Felix Planche, New Orleans. *Resolutions*:—Dr. M. C. Wiginton, Hammond, Chairman; Dr. J. E. Clayton, Norco, Dr. R. E. Gillaspie, New Orleans.

Introduction and recognition of new members of the House of Delegates.

Roll of members who died since 1953 meeting read.

Presentation of *plaque to Dr. Roy B. Harrison*, honoring his long service to the medical profession. Dr. Harrison unable to be present due to illness and Drs. McMahon and Cole appointed to deliver plaque to him.

Greetings from *Dr. Walter B. Martin*, President-elect of AMA.

Greetings from representatives of the *Woman's Auxiliary*: Mrs. M. C. Wiginton, President, Louisiana State Auxiliary; Mrs. George D. Feldner, President, Southern Medical Association Auxiliary; Mrs. George Turner, President-elect, American Medical Association.

Communications

Rapides Parish Medical Society in re *Basic Science Law*: House of Delegates went on record as being opposed to passage of a Basic Science Law.

Rapides Parish Medical Society in re *election of president of the Society*: Matter referred to Council.

Director of Washington office of AMA requesting members of House to contact members of Ways and Means Committee in re consideration of vote forcing physicians under *Social Security*:—Secretary reported telegrams sent to members of the committee considering this matter and to all Louisiana members of the U. S. Senate and House of Representatives. Money for telegrams to be sent from individual members of the House collected.

Continental Casualty Company in re *enrollment campaign for health and accident insurance*:—Received and filed.

Louisiana Division of American Cancer Society in re *opposition to chiropractor bill*:—Read and filed.

Governor Kennon in re *opposition to chiropractic bill* (written prior to his election.) Read and filed.

Action Taken

Recommendations contained in *resolution concerning charges for hospital* and *professional services* acted upon as follows: 1. The Louisiana State Medical Society affirm the action of the American Medical Association defining these medical services and condemning their being classified as hospital services in any contract offered for sale in Louisiana—Approved. 2. The President of this society be requested to appoint a committee whose function shall be to negotiate with the Hospital Service Associations (Blue Cross) and other companies offering similar insurance, to have these services of pathology, radiology and anesthesiology specified as professional services in all contracts—Referred to Committee on Committees.

Approval of $195.00 *appropriation to Woman's Auxiliary* for use in connection with *Nurse Recruitment Project* upon recommendation of Budget and Finance Committee.

Suggested *telegram and resolution* in re *chiropractor bill for submission to Louisiana Legislators* approved; to be used in accordance with instructions of Committee on Public Policy and Legislation and Executive Committee; suggestion made that these be submitted to Public Relations Agency employed by Committee on Public Policy and Legislation.

Approval of following changes in the *Anatomical Act*:—1. In Section 3.: Insert at beginning: "For the purposes of this Act an unclaimed body is one which would have to be buried at public expense because deceased has left no property to defray cost of interment and no relatives or friends claim and take charge of the body for burial without expense to the public". (This sentence is based on an opinion written by the Office of the Attorney General). 2. Also in Section 3: Before the sentence starting "The Board or its duly authorized agents . . . ": "All of the above named officials are granted authority to release such unclaimed bodies to the Board. The superintendents, directors and wardens of the institutions maintained by the State of Louisiana, moreover, are required to release such unclaimed bodies to the Board, at the

direction of the coroner of the Parish in which the unclaimed body is held."

Special committee, composed of Dr. E. L. Leckert, Dr. C. Grenes Cole and Dr. P. H. Jones, appointed to *review the Charter, Constitution* and *By-Laws and have them printed, as corrected.*

Increase in renewal fee to Louisiana State Board of Medical Examiners from five to ten dollars, approved.

President to appoint a *committee to study question of malpractice insurance rates;* committee to report to next meeting of Executive Committee for action.

Increase in *retainer fee for Attorney employed by Society*, to $2,500.00 a year, subject to approval of the Committee on Budget and Finance Committee, approved.

Amendments

Section 4 of Article IV of Constitution in re *Inactive Membership* to add "Also members who become permanently or temporarily incapacitated or of advanced age with limited practice, if such membership is requested and is approved by the Executive Committee."—Approved; final vote on amendment to be taken at 1955 Annual Session.

Section 1 of Chapter XI of By-Laws in re *dues and appropriations* — to increase dues for active members to $35.00, two dollars of the amount collected from active members to be appropriated to the Committee on Public Policy and Legislation.—Approved.

Reports without Recommendations

Following reports accepted as printed: Secretary-Treasurer; Councilors of First, Second, Third, Fourth, Fifth, Sixth, Seventh and Eighth Districts; Committees: Advisory to Selective Service, Aid to Indigent Members, Arrangements — 1954 Annual Meeting, Blood Banks, Budget and Finance, Chronic Diseases, Committees, Congressional Matters, Domicile, History of Medicine in Louisiana, Industrial Health, Journal, Lectures for Colored Physicians, Liaison with Louisiana State Nurses' Association, Maternal Welfare, Mediation, Medical Defense, Medical Education, Medical Indigency, Medical Testimony, National Emergency Medical Service, Neuropsychiatric Service at Charity Hospitals, Public Policy and Legislation, Scientific Work, Second District Medical Society and Orleans Parish Medical Society, State Hospital Policies, Woman's Auxiliary; Council on Medical Service and Public Relations.

Report of Committee on Diabetes: in re statement "the Committee on Diabetes has had no matters referred to it . . . ", motion made, seconded and carried that the Committee on Diabetes be instructed to initiate matters pertaining to diabetes instead of waiting to have matters referred to it; the Committee to be so informed.

Report of Committee on Journal — Chairman called attention to the fact mentioned in report that the Secretary-Treasurer had been appointed by Board of Trustees of the AMA to fill unexpired term of Dr. Julian Price on Advisory Committee of the State Journal Advertising Bureau and congratulated Dr. Cole on behalf of the House.

Reports with Recommendations

President: Referred to Committee on President's Report and report of this Committee in which it was recommended that all recommendations in the original and supplemental reports of the President be adopted in principle and that in re recommendation No. 6 of the supplemental report, percentage of the Board of Governors of Charity Hospital of Louisiana at New Orleans, be determined by the House of Delegates, was accepted and the following action taken on these recommendations: *Original Report*—1. Consideration to be given to increase in dues—Increase approved; Budget and Finance Committee asked to make recommendations in re amount of dues and amount to be appropriated to Committee on Public Policy and Legislation; amendment to By-Laws to conform. Following recommendation of Committee on Budget and Finance approved: Dues for active members increased to $35.00 per year; appropriation for Committee on Public Policy and Legislation increased to $2.00 per year. 2. House of Delegates endorse efforts of legal advisor of Society to have a law passed which will return to previous status the statute of limitations for malpractice suits from ten years to one year—Approved. 3. Uniform insurance blank be endorsed by House of Delegates; its establishment by Legislative Act be sought—Approved. 4. Discussion by House of continued need for public relations consultants with view to having a committee appointed to study problem and report to next meeting of Society—Approved. 5. Plans for place of annual meetings be made several years in advance — Approved. 6. Request constituent societies to devote one meeting each year to discussion and consideration of cost of malpractice insurance and recently manifested tendency of juries to give greatly increased damages in connection with suits. — Approved. 7. Request each constituent society to appoint a School Health Committee and the whole Society cooperate with the School Health Program—Approved. 8. Request local societies to continue special committees for handling the educational campaign in connection with the chiropractor problem —Approved.

Supplemental Report:—1. House of Delegates go on record as recommending that there should be no changes in the Medical Practice Act of the State of Louisiana—Approved. 2. House of Delegates go on record as being opposed to any Bill for the certification of psychologists—Approved. 3. House of Delegates go on record as to whether it does or does not wish to support the certification of physiotherapists — Approved (Recommendation of Committee on Public Policy and Legislation that

efforts of bona-fide physiotherapists to secure license be endorsed — rejected). 4. AMA be petitioned to consider and promote malpractice insurance for its members—Approved. 5. AMA be requested to continue study of problems of intern training; further consideration be given to resolution sent in June 1953 to the House of Delegates on this subject; House approve sending of copy of this resolution to other State Societies—Approved. 6. House of Delegates approve a Bill to be presented at the State Legislature that the Board of Governors of the Charity Hospital of Louisiana at New Orleans be an overlapping Board and be composed of 50% or more of doctors of medicine engaged in the practice of medicine—Approved.

Committee on American Medical Education Foundation:—1. Report of this Committee, with report of 1952-1953 Committee on American Medical Education Foundation, be referred to Committee appointed for 1954-1955—Approved. 2. Fewer members be appointed to serve on this Committee for 1954-1955—Referred to Committee on Committees.

Committee on Cancer:—1. Idea of developing a Cancer Commission of the State Society which would include official representation on the part of other organizations be abandoned—Approved. 2. Cancer Commission of the Louisiana State Medical Society, composed entirely of members of the Society be created and so designated to replace in name rather than in purpose and functions, the Cancer Committee of the Louisiana State Medical Society; membership and mode of operation of such Commission follow the suggested resolutions included in report of Committee — Approved. 3. Sum of $1,000.00 be budgeted and made available to permit implementation of at least some of the purposes of the Cancer Committee or Cancer Commission—Referred to Committee on Budget and Finance.

Committee on Child Health:—1. Legislature at 1954 session be requested to allocate funds for Louisiana Evaluation Center for exceptional children which was created at last session of Legislature—Approved. 2. Fluoridation of water supply be endorsed by State Society in accordance with endorsement by AMA—Approved. 3. Committee on Child Health be made a permanent committee of State Society—Referred to Committee on Committees.

Committee on Federal Medical Services: — 1. House of Delegates concur with recommendations of House of Delegates of AMA and Secretary of this Society be instructed to inform AMA of this action—Approved. 2. Presidents of various Parish and District medical Societies in Louisiana appoint committees at once to further the cause of the AMA in this problem, reporting their action and progress to Secretary of this Society—Approved.

Committee on Hospitals: — 1. The Louisiana State Medical Society give favorable consideration and action to the suggestion that all hospitals in the state organize a general practice department; and that the department be given a place of representation on the medical governing board of that hospital.—Motion made and carried that the recommendation terminate after " . . . a general practice department", changing the semi-colon to a period.

Committee on Public Health of the State of Louisiana: — 1. Endorsement of introduction of legislation designed to control rabies in Louisiana and apprize the Governor and Legislature of this endorsement—Approved.

Committee on Public Policy and Legislation (Supplemental Report):—1. Committee on Public Policy and Legislation be merged with Committee (Council) on Public Relations; this committee be given a budget ample to implement a sound, year-round public relations program in Louisiana—Referred to Committee on Budget and Finance and Committee on Committees. Recommendation of these committees that this recommendation of the Committee on Public Policy and Legislation be rejected because, due to diversity of duties designated to the Committee on Public Policy and the Council on Medical Service and Public Relations, such a combination would not serve the best interest of the Society, was approved. 2. State Society endorse efforts of the bona-fide physiotherapists for licensure and work toward that end.—Rejected. 3. Society foster creation of an official, non-medical commission to evaluate chiropractic and recommend appropriate legislation—Approved; referred to Executive Committee.

Committee on Resolutions: — 1. Copy of these resolutions be sent to each person and organization mentioned and also published in The Journal of The Louisiana State Medical Society — Approved.

Committee on Rural and Urban Health: — 1. Committee on Rural and Urban Health be continued — Referred to Committee on Committees. 2. One thousand dollars ($1,000.00) be appropriated for use of this Committee—Referred to Committee on Budget and Finance. 3. Officers and members of State Society take a more active part in Health Council work—Approved.

Report of Louisiana State Board of Medical Examiners

Report accepted—Dr. Rhett McMahon and Dr. E. L. Leckert, with Dr. Henry W. Jolly, Jr., and Dr. Sam Hobson, as alternates, to be recommended to the Governor for appointment to the Board of Medical Examiners in re expired terms of Drs. McMahon and Leon J. Menville.

Election of Officers, Delegate and Alternate to AMA and Committees

President-elect—Dr. Max M. Green, New Orleans.

First Vice-President—Dr. Henry W. Jolly, Jr., Baton Rouge.

Second Vice-President—Dr. George H. Hauser, New Orleans.

Third Vice-President—Dr. W. A. K. Seale, Sulphur.

Chairman, House of Delegates—Dr. W. Robyn Hardy, New Orleans.

Vice-Chairman, House of Delegates—Dr. Ralph H. Riggs, Shreveport.

Councilor, First District—Dr. H. Ashton Thomas, New Orleans.

Councilor, Second District—Dr. J. E. Clayton, Norco.

Councilor, Fourth District—Dr. Paul D. Abramson, Shreveport.

Councilor, Fifth District—Dr. C. Prentice Gray, Jr., Monroe.

Delegate to AMA (1955 and 1956)—Dr. P. H. Jones, New Orleans.

Alternate to Delegate to AMA (1955 and 1956)—Dr. Charles B. Odom, New Orleans.

Committee on Committees — Dr. E. L. Leckert, New Orleans—Chairman; Dr. J. Kelly Stone, New Orleans, Dr. W. E. Barker, Jr., Plaquemine.

Committee on Journal—Dr. Charles M. Horton, Franklin.

Committee on Medical Defense—Dr. C. B. Erickson, Shreveport, Chairman.

Committee in Public Policy and Legislation—Dr. C. E. Boyd, Shreveport, Chairman; Dr. E. L. Zander, New Orleans, Dr. J. E. Clayton, Norco, Dr. Leo J. Kerne, Thibodaux, Dr. Haydn Cutler, Monroe, Dr. H. W. Jolly, Jr., Baton Rouge, Dr. W. A. K. Seale, Sulphur, Dr. M. B. Pearce, Alexandria.

Committee on Scientific Work—Dr. C. Grenes Cole (Secretary-Treasurer), New Orleans, Chairman; Dr. Sam Hobson, New Orleans, Dr. M. D. Hargrove, Shreveport.

Future Annual Meetings

Dates and places:—1955—New Orleans; 1956—Alexandria; 1957—New Orleans; 1958—Shreveport; 1959—New Orleans; 1960—not selected; 1961—New Orleans. First three days of week to be designated whenever possible.

REPORT OF COMMITTEE ON MEDICAL DEFENSE

Since submitting a report of this Committee in 1953 six requests for defense in connection with malpractice suits have been referred to the Committee. It was agreed that each should be defended and material in connection with the cases was referred to the attorney of the State Society. At this time action is pending in all of these cases.

During the past year one old case was terminated by order of the court because no action had been taken by the claimant in a period of five years.

In another old case, a compromise settlement was recommended by the attorney for the Society, approved by the Committee and accepted by the defendant. The following comment by the attorney concerning this case seems quite pertinent: "This type of case illustrates most forcefully the necessity of doctors, and in particular surgeons, obtaining written consent. Obtaining such consent should be absolutely mandatory in a surgical procedure involving such serious consequences as sterilization."

One case pending from last year was recently tried in Federal Court in Ruston and a judgment for $64,000.00 was awarded the plaintiff, again on the claim that the operation had not been authorized.

C. B. ERICKSON, M. D., Chairman

—o—

REPORT OF COMMITTEE ON RESOLUTIONS

It is felt by the Committee on Resolutions that the 1954 Annual Meeting of the Louisiana State Medical Society held in New Orleans, May 20-22, has been an outstanding one and that this has been the result of efforts, cooperation and assistance of many individuals, groups and business firms.

Several months ago, Dr. William H. Roeling was appointed by the President of the Orleans Parish Medical Society to serve as General Chairman for this Meeting. Dr. Roeling gave much time and thought to making plans for this meeting and it was indeed a tremendous shock to the officers of the Society, members who served on his sub-committees and personnel of the Secretary's office when he became acutely ill two weeks ago and passed away on last Friday. His interest in this meeting was keenly displayed and his absence has been felt by all in attendance.

THEREFORE, BE IT RESOLVED, that this House of Delegates rise at this time in tribute to this beloved member,

BE IT FURTHER RESOLVED that the Society express appreciation for assistance rendered by the following:

Dr. J. Theo Brierre, who has served as Chairman of the Committee on Arrangements since the death of Dr. Roeling,—and to personnel of all sub-committees on Arrangements.

All members of the Orleans Parish Medical Society—hosts to the meeting.

Rev. Father Carl Schutten, who delivered the invocation at the opening meeting of the Society.

Hon. James E. Fitzmorris, Jr., for words of welcome on behalf of the City of New Orleans.

Dr. Walter B. Martin, President-elect of the A.M.A. who served as annual orator for the meeting.

Dr. J. O. Weilbaecher and Dr. C. L. Brown, for expressions of welcome on behalf of Orleans Parish Medical Society and New Orleans Graduate Medical Assembly.

The following out-of-state guests who participated in the scientific program:
Dr. Houck E. Bolton, Philadelphia, Pennsylvania; Dr. James N. Etteldorf, Memphis, Tennessee; Dr. S .W. Hawkins, Fort Smith, Arkansas; Dr. Powhatan W. James, Houston, Texas; Dr. William Likoff, Philadelphia, Pennsylvania; Dr. Arthur Merrill, Atlanta, Georgia; Dr. John W. Middleton, Galveston, Texas; Dr. Lewis J. Moorman, Oklahoma City, Oklahoma; Dr. James L. Royals, Jackson, Mississippi.

Members of the Society who participated in the scientific program.

The Times-Picayune, New Orleans States and New Orleans Item and newspapers throughout the state for news releases.

Scientific exhibitors.

Technical exhibitors.

Advertisers in the program.

The Roosevelt Hotel, headquarters for the meeting, for excellent cooperation in handling hotel accommodations for members and guests and furnishing all requirements for scientific, business and social phases of the meeting.

Other hotels in New Orleans for accommodations furnished members.

Dr. Edwin H. Lawson, Secretary, Louisiana State Board of Medical Examiners, for his comprehensive report submitted to the House of Delegates.

Dr. P. H. Jones, President of the Society.

Dr. C. Grenes Cole, Secretary-Treasurer.

Miss Annie Mae Shoemaker, Assistant Secretary-Treasurer, and the entire secretarial staff for assistance prior to and during the meeting.

Mrs. Edwin A. Socola, President, Woman's Auxiliary;—Mrs. Paul G. Lacroix and Mrs. Aynaud Hebert—Chairman of Arrangements for the Auxiliary Meeting.

Expressions of gratitude are also extended to Governor Robert F. Kennon for his continued cooperation in medical matters of interest to the members of the State Society during the past year.

RECOMMENDATION

1. It is recommended that a copy of these resolutions be sent to each person and organization mentioned and also published in The Journal of the Louisiana State Medical Society.

Respectfully submitted,

SIGNED: J. E. Clayton, M. D.
R. E. Gillaspie, M. D.
M. C. Wiginton, M. D.
Chairman

MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

EIGHTEENTH ANNUAL MEETING NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The eighteenth annual meeting of The New Orleans Graduate Medical Assembly will be held March 7-10, 1955, headquarters at the Municipal Auditorium.

The following officers and members of the Executive Committee have been elected for this year:

Dr. W. D. Beacham, President
Dr. Donovan C. Browne, President-elect
Dr. Charles L. Brown, First Vice-President
Dr. James D. Rives, Second Vice-President
Dr. Willoughby E. Kittredge, Third Vice-President
Dr. Maurice E. St. Martin, Secretary
Dr. Jules Myron Davidson, Treasurer
Dr. Eugene H. Countiss, Director of Program
Dr. Boni J. DeLaureal, Assistant Director of Program
Dr. Richard W. Vincent, Assistant Director of Program

Executive Committee: Dr. Andrew V. Friedrichs (retiring President), Dr. Cuthbert J. Brown,

Dr. Barrett Kennedy, Dr. Ambrose H. Storck, and Dr. Charles R. Walters.

ANNUAL CONFERENCE OF THE AMERICAN OCCUPATIONAL THERAPY ASSOCIATION

The 37th Annual Conference of the American Occupational Therapy Association will be held at the Shoreham Hotel, Washington, D. C., October 16-22, 1954. The meetings will be as follows:

October 16-17	Preliminary Meetings
October 18-19	Institute—Interpersonal Relations
October 20-21-22	General Conference—Theme: "Capitalize Your Assets"

ANNUAL ASSEMBLY IN OTOLARYNGOLOGY

The Department of Otolaryngology, University of Illinois College of Medicine, announces its Annual Assembly in Otolaryngology from September 6 to 11, 1954. The entire week will be devoted to surgical anatomy and cadaver dissection of the head and neck, and histopathology of the ear, nose and throat. The Assembly will be under the direction of Maurice F. Snitman, M. D.

Registration will be limited. For information write to the Department of Otolaryngology, University of Illinois College of Medicine, 1853 West Polk Street, Chicago 12, Illinois.

ACTH AND CORTISONE SAVE Rh BABIES, PHYSICIAN REPORTS

CHICAGO—ACTH and cortisone keep most Rh-menaced babies alive until birth, Dr. Oscar B. Hunter, Jr., M. D., of Washington told the American Association of Blood Banks in Chicago.

The treatment has cut the mortality rate of babies born alive from 10% to 2%, and the incidence of still births from 17% to 3% in cases of mothers who had lost babies previously.

The Rh factor is an antigen found in the red blood cells of 85% of people in the United States. The remaining 15% lack it. When Rh-positive blood is introduced into the circulation of an Rh-negative woman, she produces an antibody against the invading substance.

POLIO POINTERS FOR PARENTS—1954

About the trial vaccine . . .

A safe and promising polio vaccine is now being tested for effectiveness in preventing paralytic polio. Hundreds of thousands of children in the primary grades are taking part in the tests. All the vaccine available is being used in this field trial so that *there will be none of it for anyone else this year.*

Only children in areas selected by State Public Health Officers and the National Foundation for Infantile Paralysis could be included in the tests. Not all of them are receiving the vaccine, but the health records of all these children are necessary to prove the value of the vaccine.

During the 1954 polio season, all polio cases occurring among children selected for the test—both those who received the vaccine and those who did not—will be carefully studied. A comparison should show whether children who received the vaccine actually were protected when polio came to their neighborhood. The final results will not be known until sometime in 1955. Until scientists declare this vaccine to be effective, it will not be produced for general use.

About Gamma Globulin (GG) . . .

The National Foundation for Infantile Paralysis has purchased $19,000,000 worth of gamma globulin. All of it has been turned over to the Office of Defense Mobilization of the federal government.

Most of the GG has been earmarked to provide polio protection for nearly two million children and for pregnant women. Gamma globulin, which is not a vaccine, provides protection for five weeks, only if given before exposure to the disease. For this reason it is effective for groups and communities in which polio is occurring, when given to those persons who might be exposed. GG offers no protection to members of families where the disease is already present.

GG will be distributed only to State and Territorial Health Officers who will decide when, where and to what groups it will be given.

GG also is effective for prevention of measles and infectious hepatitis. It will continue to be available for these purposes.

About precautions . . .

Until an effective vaccine is available for general use, we must continue to expect epidemics of polio. Here is what you can do if polio comes to your community.

1. Keep children with their usual companions; don't take them in crowds.
2. Avoid fatigue and chilling. This means adults, too.
3. Follow your doctor's advice about mouth and throat operations.
4. Teach children to wash hands carefully before eating and after going to the toilet. Don't use another's soiled towels, dishes or tableware.
5. Tell your doctor if these symptoms appear: headache, fever, sore throat, upset stomach, stiff neck or back. Put sick person to bed promptly.
6. Remember—at least half of all polio patients get well without any crippling.
7. Get in touch with your local Chapter of the National Foundation for Infantile Paralysis if you need help for a polio patient.

Small pamphlets including this information to mail to your patients or to place in your waiting room, may be obtained from The National Foundation for Infantile Paralysis, Inc., 448 Lee Circle Building, 1040 St. Charles Avenue, New Orleans, La.

BOOK REVIEWS

The Fight Against Tuberculosis; An Autobiography by Francis Marion Pottenger. Henry Schuman, New York, 1952. pp. 276, Price $4.00.

This is an account of the life of one of the first specialists in the diagnosis and treatment of tuberculosis. Told almost as a series of anecdotes detailing the years of his growth and development, it gives a large measure of insight into the character of one of the pioneers in the organized fight against tuberculosis in this country. Dr. Pottenger's interest in tuberculosis was awakened when his wife became sick of tuberculosis and finally succumbed to the malady, a not uncommon fate for those days. Determined to learn more about this illness which at that time baffled the best medical minds and carried with it an almost hopeless prognosis, he plunged himself into a lifetime of study with this as his chief objective.

How he fared during these years is an interesting story. In it are encountered many of the great persons on the medical scene of the last portions of the nineteenth century and the first half of the twentieth. Prominent individuals in many other walks of life are also mentioned briefly. Through it all, one sees portrayed the tremendously enheartening panorama of man's life-long struggle and twentieth-century conquest of tuberculosis.

Those who are interested in biography will find this a good character study. Others will see in this warmly human and personal account of the great struggle against the "White Plague" a message of hope. Dr. Pottenger's variety of interests will appeal to a wide reading public.

SYDNEY JACOBS, M. D.

Introduction to Physiological Optics; by Armin von Tschermak-Seysenegg. Translated by Paul Boeder, Springfield, Illinois, Charles C. Thomas, 1952, Pp. 299, Price $10.50.

This important volume in the field of physiological optics has been made available in English through the translation by Dr. Paul Boeder, and was sponsored by the American Committee on Optics and Visual Physiology of the Section on Ophthalmology of the American Medical Association in conjunction with the American Ophthalmological Society and the Academy. As Burian points out in the prefatory note, there is little available which fully treats the visual act, and this volume, now that it has been translated, is a welcomed addition. The six chapters present in a very clear and readily understandable manner such topics as the optical image, light sense, color sense, uniocular space sense, binocular space sense and ocular movements. In these days when the problems of binocular single vision are receiving greater attention than ever before and when the clinical significance of aniseikonia is being considered, the chapters on uniocular and binocular space sense are of particular interest. Such topics as the Horopter, Panum's area, corresponding points and stereopsis, are presented in such a manner as to give an excellent background for the reading and study of some of the more recent (such as the volume on Binocular Vision by Ogle) contributions to this very important portion of the field of visual science. As a conclusion to the chapter dealing with single and double vision, retinal correspondence, the Horopter problem, stereoscopic cooperation of disparate retinal elements and visual localization, Tschermak wrote: "All these results which could be treated here only by way of introduction, represent merely the first promising part and not the conclusion of a fully satisfactory theory of the visual spatial sense. Its further development or its completion will require, for a long time to come, 'the effort of the noble'."

CHARLES SHEARD, Ph. D.

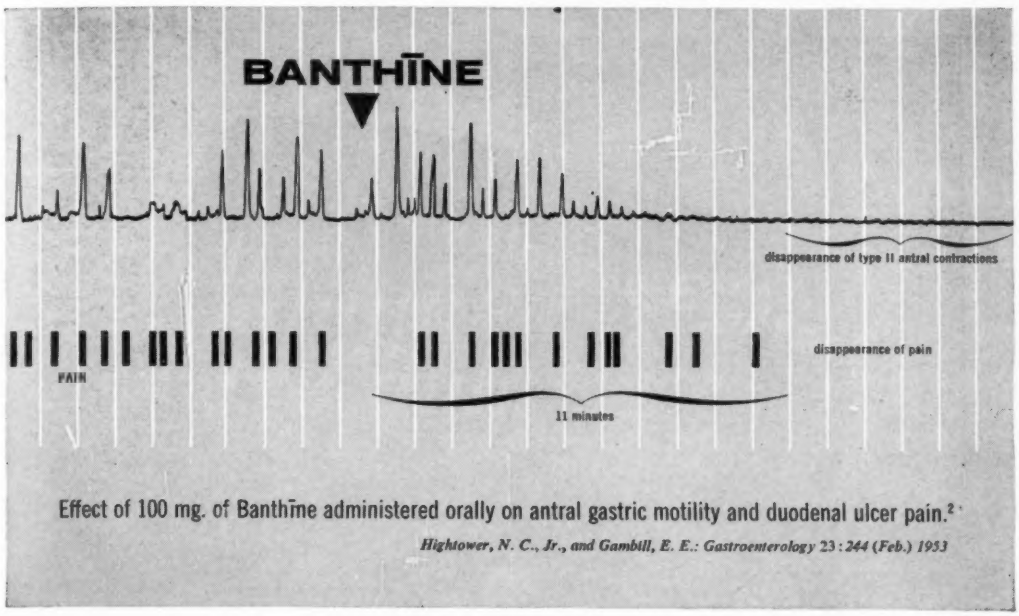
Clinical Diagnosis by Laboratory Methods; by James Campbell Todd, Arthur Hawley Sanford, and Benjamin B. Wells, 12th. ed., Philadelphia, Pennsylvania. W. B. Saunders Co., 1953, Pp. 998, 946 illus., Price $8.50.

"Todd and Sanford," that old reliable of the medical laboratory, has come forth in a new, twelfth edition. The joint effort of Doctors Arthur H. Sanford and Benjamin B. Wells, this latest version of a distinguished volume conforms in every way to the high standard of merit established more than forty years ago by the original senior author, the late Dr. James C. Todd, with whom Dr. Sanford was associated as co-author of several previous editions. The name of Benjamin Wells is a respected one both in internal medicine and in clinical pathology. To his training and experience as a physician Dr. Wells several years ago added that of a biochemist, earning from the Mayo Foundation the Ph. D. in this field. That this combination was, and is, a most happy one is evident, for example, in the sections of the book dealing with clinical chemistry. These, like the edition throughout, have been brought up to date.

The 12th edition indicates that the team of Sanford and Wells is an effective one and that we can expect them to carry on a great tradition in good medical literature. Dr. Sanford, for many years Professor of Clinical Pathology of the Mayo Foundation, himself requires no introduction to either pathologists or the medical profession at large.

The internal arrangements, typography and illustrations of this book are extremely well handled. Clinical pathologists and teachers of medical technology will need no urging to add this new 12th edition to their working libraries. To the medical profession in general it is unhesitatingly recommended as essential to all who have more than a casual interest in clinical laboratory procedures and diagnosis.

J. W. DAVENPORT, Jr., M. D.



Effect of 100 mg. of Banthine administered orally on antral gastric motility and duodenal ulcer pain.[2]

Hightower, N. C., Jr., and Gambill, E. E.: Gastroenterology 23:244 (Feb.) 1953

Banthine® Reduces Hypermotility and Hyperacidity in Peptic Ulcer

A recent evaluation of anticholinergic therapy in peptic ulcer emphasizes the fact that now the profession has at its disposal agents that are "effective in reducing both secretory and motor activity of the stomach."

The effect on motor activity is generally more pronounced and less variable than on secretion; pain relief is usually prompt; a high degree of effectiveness is noted in ambulatory ulcer patients.

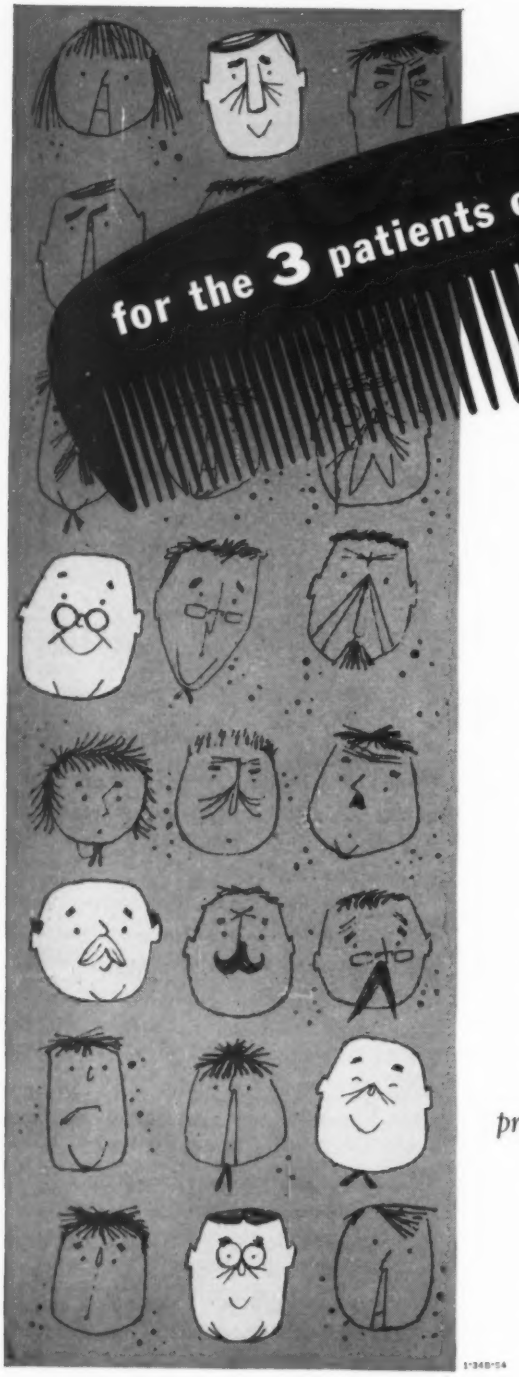
Ruffin, J. M.; Texter, E. C., Jr.; Carter, D. D., and Baylin, G. J.: J.A.M.A. 153:1159 (Nov. 28) 1953.

With its proved anticholinergic effectiveness, Banthine has been found extremely useful in the medical management of active peptic ulcer, whether duodenal, gastric or marginal.

The immediate increase in subjective well-being and the simplicity of the Banthine regimen assures patient cooperation. The recommended initial therapeutic dose is 50 or 100 mg. (one or two tablets) every six hours around the clock, with subsequent individual adjustment. The usual measures of diet regulation, rest and relaxation should be followed.

Banthine is effective in other conditions caused by excess parasympathetic stimulation. These include hypertrophic gastritis, acute and chronic pancreatitis, biliary dyskinesia and hyperhidrosis. Banthine is contraindicated in the presence of glaucoma and should be used with caution in the presence of severe cardiac disease or prostatic hypertrophy.

Banthine® bromide (brand of methantheline bromide) is supplied in scored tablets of 50 mg. and in ampuls of 50 mg. It is accepted by the Council on Pharmacy and Chemistry of the American Medical Association. G. D. Searle & Co., Research in the Service of Medicine.



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1. Slepyan, A. H. (1952), Arch. Dermat. & Syph., 65:228, February. 2. Slinger, W. N. and Hubbard, D. M. (1951), *ibid.*, 64:41, July. 3. Sauer, G. C. (1952), J. Missouri M. A., 49:911, November.

1-348-54

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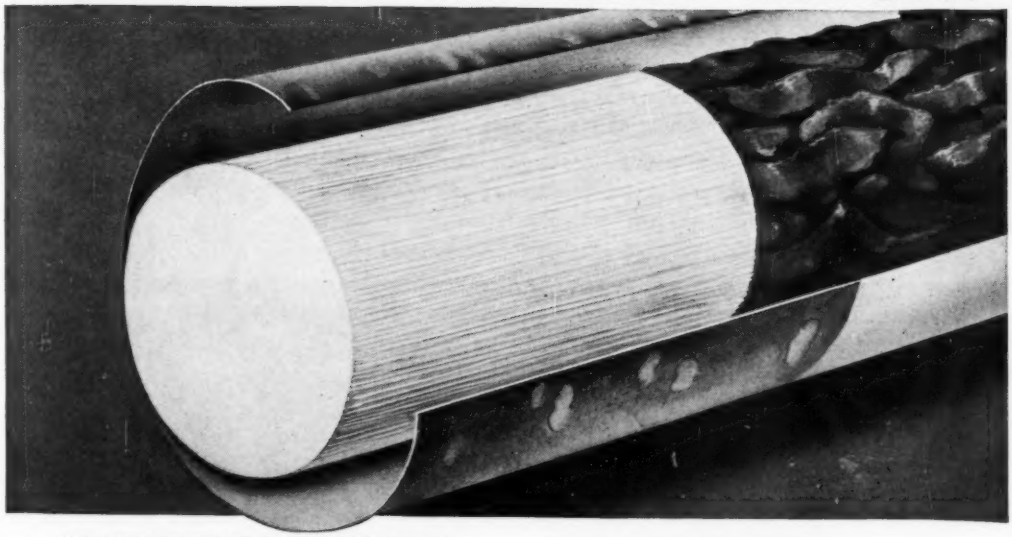

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Distrycin has an important advantage over streptomycin. It has the same therapeutic effect but ototoxicity is greatly delayed. Since the patient is given only half as much of each form of streptomycin as he would have on a comparable regimen of either one prescribed separately, the danger of vestibular damage (from streptomycin) or cochlear damage (from dihydrostreptomycin) is significantly lessened.

Signs of vestibular damage appear in cats treated with Distrycin as much as 100 per cent later than in animals given the same amount of streptomycin.

Cat treated with streptomycin shows no nystagmus after whirling.

Cat given the same amount of Distrycin has normal reflex.

On dosage of 1 Gm. per day for 120 days, ototoxicity was as follows*:

	Vestibular damage % of patients		
	Mild	*Moderate*	*Total*
Streptomycin	12	6	18
Dihydrostreptomycin	6	0	6
Distrycin	0	0	0

	Cochlear damage % of patients		
	Mild	*Moderate*	*Total*
Streptomycin	0	0	0
Dihydrostreptomycin	12	3	15
Distrycin	0	0	0

*Heck, W.E.; Lynch, W.J., and Graves, H.L.: Acta oto-laryng. 43:416, 1953.

Distrycin dosage is the same as for streptomycin. In tuberculosis the routine dose is 1 Gm. twice weekly, in conjunction with daily para-aminosalicylic acid or Nydrazid (isoniazid). In the more serious forms of tuberculosis, Distrycin may be given daily, at least until the infection has been brought under control.

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NOT ARTHRITIS BUT ARTHRALGIA...

If the patient complaining of aching joints is a woman between 37 and 54 years of age, it is highly possible that she is suffering from arthralgia rather than arthritis.[1] It has been estimated that arthralgia occurs in about 40 per cent of women with estrogen deficiency, and is exceeded in frequency only by symptoms of emotional or vasomotor origin.[2] In fact, arthralgia may be as indicative of declining ovarian function as the classic menopausal hot flushes.

Arthralgia, however, is just one of a vast number of distressing but ill-defined symptoms that may be precipitated by the loss of estrogen as a "metabolic regulator." Other good examples are insomnia, headache, easy fatigability, and tachypnea.

Because these symptoms sometimes occur years before or even long after cessation of menstruation, they are not always readily associated with estrogen deficiency, and the tendency may be to treat them with medications other than estrogen. Obviously, sedatives and other palliatives cannot be expected to produce a satisfactory response if an estrogen deficiency exists. Only estrogen replacement therapy will correct the basic cause of the disorder.

"Premarin" is an excellent preparation for the replacement of body estrogen. In "Premarin" all components of the complete equine estrogen-complex are meticulously preserved in their natural form. "Premarin" produces not only prompt symptomatic relief but a distinctive "sense of well-being" which is most gratifying to the patient.

1. Greenblatt, R. B., and Kupperman, H. S.: M. Clin. North America *30*:576 (May) 1946. 2. McGavack, T. H., in Goldzieher, M. A., and Goldzieher, J. W.: Endocrine Treatment in General Practice, New York, Springer Publishing Company, Inc., 1953, p. 225.

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This new filter is made of a filtering material so efficient it has been used to purify the air in atomic energy plants of microscopic impurities.

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And yet KENT's Micronite Filter, which removes a greater percentage of nicotine and tar than any other filter cigarette, lets through the full flavor of KENT's fine tobaccos.

Because so much evidence indicates KENT is the most effective filter-tip cigarette, shouldn't it be the choice of those who want the minimum of nicotine and tar in their cigarette smoke?

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Reporting on work accomplished since the Registry was reorganized in June of last year, the Director has presented the following figures after noting that all cases diagnosed prior to January 1, 1948 were discarded as well as certain benign cases.

12,193 records were reviewed on backlog cases
4,444 cases were thrown out of the Registry
8,741 cases from January 1, 1948 through December 1953 were abstracted
122 cases from January 1, 1948 through December 1953 pending review

From the above figures the volume of cases is as follows:

8,863 cases for five years—January 1948 to December 1953.

A recent tabulation of a total of 9236 cases abstracted, coded and recorded shows the following geographic distribution:

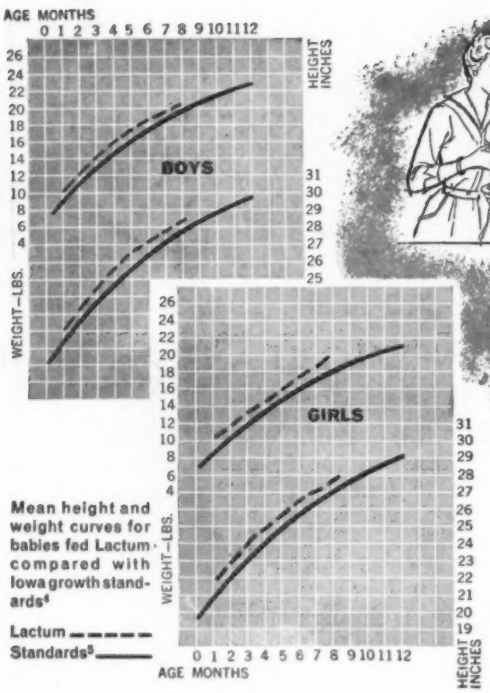
Out of state — 20 cases
New Orleans — 3788 cases
Balance of state — 5428 cases

Space does not here permit of a complete listing by parishes but this information may be secured by any interested physician by writing the director of the Cancer Registry, Charity Hospital, New Orleans; or, the American Cancer Society, 822 Perdido Street, New Orleans.

Louisiana State Department of Health

S. J. Phillips, M.D., M.P.H.

State Health Officer


AGE MONTHS
0 1 2 3 4 5 6 7 8 9 10 11 12
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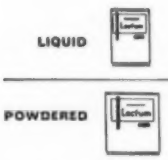
(1) Jeans, P. C.: In A.M.A. Handbook of Nutrition, Ed. 2, Philadelphia, Blakiston, 1951, p. 275. (2) Albanese, A. A.: Pediat. 8: 455, 1951. (3) Holt, L. E., Jr., and McIntosh, R.: In Holt Pediatrics, Ed. 12, New York, Appleton-Century-Crofts, Inc., 1953, pp. 175-178. (4) Frost, I. H., and Jackson, R. L.: J. Pediat. 39: 585, 1951. (5) Jackson, R. L., and Kelly, H. G.: J. Pediat. 27: 215, 1945.

Calculated on the basis of a daily allowance of 3.5 Gm. per Kg.



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